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USSR Report

MILITARY AFFAIRS

No. 1758

AVIATSIYA I KOSMONAVTIKA

No. 11, November 1982

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USSR ANNIVERSARY ARTICLE CITES ACHIEVEMENTS

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 1-3

[Article Col Gen Avn V. Reshetnikov, Hero of the Soviet Union, USSR Distinguished Military Pilot: "The Mighty Stride of October"]

[Text] The friendly and unified family of Soviet peoples is greeting the 65th anniversary of the Great October Socialist Revolution with shock labor and remarkable achievement in communist construction. Millions of foreign friends of the Soviet Union are triumphantly and joyfully celebrating the noteworthy date together with us. They quite rightly believe the birthday of the world's first laborer's state to be a general holiday of the socialist fraternity, of the international working class and of all revolutionary, liberational and progressive forces of modern times.

The historic shot of the "Aurora" proclaimed to the world the beginning of a new era, a socialist era. The flaming words of Vladimir Il'ich Lenin resounded over the entire planet: "The workers and peasants revolution, the necessity of which was always argued by the Bolsheviks, has been won." Led by the party of the communists, the laboring people overthrew the age-old yoke of the landowners and capitalists and established their own rule--the dictatorship of the proletariat. A broad avenue opened up before the popular masses for building a new life, for inspired creative labor and for comprehensive development of the personality.

All of the world bourgeoisie sensed the socialist transformations in Russia to be a mortal danger to itself, veiwing them as the beginning of the fall of foundations of world capitalism and the colonial system it had created. Fourteen imperialist states joined forces with the White Guards in order to liquidate by force of arms the accomplishments of the first workers and peasants state of mankind's history. During the civil war and the years of foreign military intervention the working class and the laboring peasantry endured unprecedented burdens and deprivations, and they displayed exceptional endurance and mass heroism at the front and in the rear. Inspired by the appeals and the personal example of communists, they consciously sacrificed themselves, knowing that they were defending a new social and state structure, that they were protecting their own Soviet rule and the interests and fate of the laborers. This was the main source of the moral superiority and the victory of the laboring masses and of the young Red Army over the interventionists and White Guards.

Bourgeois propaganda did everything it could to spread gloomy prophesies for our country, proclaiming the "exact dates" of the fall of the young Soviet Republic. It was challenged by various ultimatums, and "crusades" were organized against it. But the predictions of our enemies were not to come true. Repelling the provocations of the imperialists, the country confidently brought socialism in close unity with fraternal peoples and republics. Owing to the whole people's labor enthusiasm industrial giants and new cities were erected in improbably short time, and the kolkhoz system grew stronger. Under the guidance of the Communist Party the Soviet people successfully completed their main task--building a new life.

Industrialization, collectivization, cultural revolution and just resolution of the nationalities question transformed our motherland from a backward and fragmented country into a mighty socialist power.

The Workers and Peasants Red Army was furnished with modern military equipment, and its air force grew stronger. A number of the fighting vehicles, and especially the airplanes, were significantly superior in tactical, technical and fire characteristics to the best similar foreign models. This equipment passed its tests successfully not only in maneuvers and at the proving grounds but also in aerial combat in China, Spain and Mongolia, where Soviet volunteers provided international assistance to peoples fighting for liberty and independence. The power of Soviet aviation and its top-class equipment and armament went a long way to promote defeat of Japanese invaders at Lake Khasan and the Khalkhin-Gol River.

With every year our national economy increased its tempo, and from one year to the next the welfare of the Soviet people increased. New economic regions and the Far East underwent development, the deserts of Central Asia were irrigated, and caravans of ships blazed a trail into the Arctic. In the 1930s the entire world was astounded by the heroic Chelyuskin epic, the landing of the Papanin expedition on the North Pole, the grandiose flights by the crews of V. Chkalov, M. Gromov and V. Grizodubova, outstanding flights in balloons and remarkable achievements in parachute sports. Only one country was capable of such feats: a young socialist state born of Great October--the Union of Soviet Socialist Republics.

In fraternal cooperation, the laboring peoples built a new life, one never witnessed before in the history of mankind. The Stakhanov movement gained strength at the plants, factories and fields, taking over the entire country. Workers and kolkhoz farmers studied the best achievements of science, absorbing the best experience of production innovators. These were N. Izotov and A. Stakhanov in coal industry, M. Mazay in metallurgical industry, A. Busygin in machine building and P. Krivonos in rail transport. In agriculture, example of high achievements were demonstrated by tractor operator P. Angelina, by M. Demchenko on the beet fields and by M. Nakhangova among cotton growers. There were thousands of them, folk heroes, who are followed by the working class and the kolkhoz peasantry.

The successes of the Soviet Union in building a new life were not to the liking of the enemies of socialism. Imperialism did not want to make peace with the USSR's swift development. The watchdog which imperialist circles decided to set upon the Soviet Union was fascist Germany. It was generously armed, and it was actively prodded toward the east, to the borders of our state. And German fascism was already fostering its dream of world supremacy.

Unleashing World War II, Germany crushed almost all of Europe beneath itself, subordinating its industry and economic resources to its own predatory interests. Even after Hitler's troops invaded our country and the entire danger of Nazi aspirations became increasingly clearer to the ruling circles of the leading capitalist countries, they did not hurry to the USSR's aid. A second front, which had been promised in the treaty obligations of the allies--the USA and England--back at the beginning of the war, was not opened until summer 1944, after the victory over Hitler's Germany was already predestined. The Soviet people and their armed forces had to carry the main burden of the war upon their own shoulders.

That war was a trial of extreme hardship, costing our motherland enormous sacrifices. Two giant forces--socialism and German fascism--collided in mortal combat. No other country would have been capable of withstanding that collosal onslaught by fascism and its satellites which was brought down upon the Soviet Union. No socioeconomic system, except for our socialist system, would have endured the burdens of a war of such a scale. And we endured and won, bringing liberty to many peoples of Europe.

During the Great Patriotic War the Soviet people demonstrated steadfastness, military proficiency and valor that astounded the entire world, and they defended socialist accomplishments and the freedom and independence of their motherland; they saved the world from the threat of fascist enslavement. History had never witnessed such monolithic unity of the people and the army and of the rear and front. The names and deeds of many valorous aerial warriors were inscribed in gold letters in the heroic chronicle of the war. The victory of the Soviet Union in the Great Patriotic War was the triumph of the moral-political unity of Soviet society, which did not waver in response to the treacherous attack by the fascist German hordes and the severe trails of the past war.

The experience of history persuasively revealed the superiority of the Soviet state structure and of the military organization of the world's first socialist state in comparison with the war machine of imperialism. This superiority is an objective result of the nature of our army of a new type and the conditions of its development.

Lenin's ideas on dependably protecting socialism and communism are embodied in the inviolable defense capabilities of our motherland. The constant concern of the Communist Party for the armed forces made it possible to achieve fundamental qualitative transformations in their development. The insurmountable powers of the army of the whole people's Soviet state lies in the fact that its soldiers are armed with progressive combat equipment and believe in the highest communist ideals.

Owing to the advantages of socialism the Soviet Union climbed to first place in the world in relation to a number of the most important sectors of production, science and technology in the postwar years. This made it possible to outfit our armed forces with the most effective weapons, including modern aviation complexes and nuclear missiles capable of quickly and unstoppably striking the aggressor on any point on the globe.

At the same time the CPSU and the Soviet government are firmly and consistently waging an active struggle for peace and international cooperation, and for the liberty and independence of peoples. The USSR's foreign policy is a class-based socialist policy. It is aimed at creating favorable external conditions for communist construction in our country, for reinforcement of the fraternal unity of countries in the socialist fraternity and for supporting the workers and national liberation movements and the peaceful coexistence of states with different social structures.

It is with pleasure and gratefulness that the Soviet people respond to the successes of our foreign policy--the result of the constant creative work of the entire party, the CPSU Central Committee and its Politburo, headed by a faithful Leninist and an outstanding political and state functionary of the modern era, Comrade L. I. Brezhnev. Persistently implementing Lenin's peace-loving foreign policy, our party and the Soviet government concurrently consider how insidious are the designs of reactionary and militant forces opposing detante. Thus the U.S. administration, which sets the tone for the aggressive North Atlantic bloc, is doing everything it can to turn the development of history back, to push the world back to the times of cold war and nuclear brinksmanship. International imperialism and its strike force--NATO--are now the main sources of military danger. Under these conditions the Soviet Union and the fraternal socialist countries are combining a firm desire for peace with untiring concern for strengthening their defense capabilities and making themselves ready to foil the insidious designs of any aggressor.

"Knowing the habits and nature of the aggressive forces," pointed out CPSU Central Committee Politburo member, USSR minister of defense, Marshal of the Soviet Union D. F. Ustinov, "the USSR will keep the armed forces at the required level of high alertness and constant combat readiness. Our defensive doctrine, which is intended exclusively for the repulsion of an external threat, will not be passive. As always, it will rely upon the unshakable foundation of Lenin's teaching on defense of the socialist fatherland. In the case of aggression, jointly with fraternal socialist armies our armed forces will defend socialist accomplishments without any vacillation, with full decisiveness, using all of the defensive and economic power of our states."

The times when a clique of imperialist states, using Engels' figurative expression, "controlled world history like a string puppet theater" have faded into oblivion. Formation of the socialist state, the rise of the workers movement in capitalist countries and the victories of revolutions of national liberation, which annihilated the colonial system of imperialism, led to fundamental irreversible changes in the world arena. Today socialism has become the most influential social force of modern times.

The peoples of socialist states are now living and successfully building a new society on three continents--from the Republic of Cuba to the Democratic Republic of Vietnam. The resources of these countries are tremendous, and their defensive power, which has been placed in the service of peace, is invincible. Their international authority is high. The fraternity of states united into the Warsaw Pact and the Council for Economic Mutual Assistance has transformed into one of the

most mighty organizations of international life, the policy of which is the dominant factor in defense of the interests of universal peace and the independence of nations.

The motherland of Great October is celebrating its new anniversary in a time when its vital forces are flourishing, in a situation of inexhaustible creative energy, in an atmosphere of the whole people's struggle for implementation of the historic decisions of the 26th CPSU Congress and the May (1982) CPSU Central Committee Plenum. Successful completion of the tasks of communist construction and growth in the rate of our country's movement along the course set by Great October depend directly on developing the creative forces of the popular masses and raising their productive, political and social activity. Lenin's commandment has become the law of life and labor of Soviet people nurtured by the Communist Party: Do not become so self-satisfied with the abilities which you have developed on the basis of present experience; instead, always go farther, always achieve more!

Is the fact that the map of the USSR changed beyond recognition during the years of Soviet rule not in keeping with the commandment! The Ural has been transformed into the powerful bastion of socialist industry. Siberia has become a land of an unprecendented rate of economic development, high culture and great science. The enormous resources of the Far East have been placed in the service of the people. During the years of Soviet rule many hundreds of industrial enterprises, schools and cultural institutions were built in the republics of Central Asia, which achieved their own national socialist statehood and enjoyed economic and cultural development following Great October. Grandiose changes occurred in the republics of the Transcaucasus and the Baltic, in the Ukraine, Belorussia and Moldavia, and in the life of all peoples of the USSR.

Each of the fraternal republics is making a substantial contribution to fulfilling the assignments of the 11th Five-Year Plan. Data of the USSR State Statistical Administration show that in the first half of this year the increase in production was 2.7 percent in comparison with the same period of last year, with most of the increase due to growth in labor productivity. The half-year plan for extraction of gas and coal and for production of chemical plant protection resources, motor vehicle tires, machine tools, instruments, automation and computer resources, electric locomotives, tractors, agricultural machinery and many consumer goods was surpassed.

Fulfilling the directives of the May (1982) CPSU Central Committee Plenum, agricultural laborers have taken an active part in implementing the Food Program. The seasonal field operations were completed on time. In comparison with last year the amount of area devoted to rice, millet, cotton, vegetables and other crops was increased. Capital investments into agriculture were increased by three percent in relation to all operations, to a total of more than 15 billion rubles.

The creative power of the inviolable union of socialist nations, brought into being by Great October, is generally manifesting itself clearly in the purposeful friendly efforts and the remarkable achievements of laborers of the fraternal republics, and in the continual progress enjoyed by each of them and by the socialist fatherland. Our party and our country are showing to the peoples of the world how the nationalities issue-- a highly complex sociopolitical problem--can and must be resolved on the basis of the principles of internationalism.

CPSU Central Committee general secretary, chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev emphasized many times in his speeches that today's achievements of the Soviet people are a direct continuation of the cause of October, a practical embodiment of the ideals of the great Lenin. These achievements are a clear and full embodiment of the continuity of the glorious generations of champions and builders of the new society. It is upon the successes of the Soviet people in their creative labor, upon implementation of the Food Program and upon growth of the economic and defensive power of our motherland that reinforcement of its positions in the international arena depends.

The Soviet Union is always ready for universal and complete disarmament under strict international control. However, as long as imperialists refuse to give up their aggressive adventuristic policy, one harboring the danger of nuclear disaster, it continues to be our sacred obligation to be on guard, to strengthen the state's defense capabilities in every possible way. This is why Soviet soldiers serve their their difficult service with a clear understanding of their honorable constitutional duty. They are inspired by the ideas in behalf of which the USSR Armed Forces exist. They are exalted by the ideals of communism. They are inspired by the labor achievements of the creative people and by the wise policy of the party and govenrment.

The October holiday is an important landmark in the life of the soldiers of our valorous air force as well. This is a time when airmen report to the motherland on the achievements of the training year and the successes attained in combat improvement. We have something to be proud about. The absolute majority of the squadrons and regiments satisfied their socialist pledges in the competition conducted under the catch-phrase "Dependable protection for the peaceful labor of the Soviet people!" They achieved high results in aerial, fire, tactical and special training, and they matured ideologically.

Substantial were the successes enjoyed by the leaders of the competition in the air force in fulfilling their socialist pledges--units and subunits commanded by officers V. Sadikov, V. Mokhov, V. Maley, A. Mikhaylov and others.

The air force is growing and developing with every year, and it is being outfitted with the most sophisticated combat equipment. Commanders, political workers, party and Komsomol organizations, flight crews, engineers, technicians, staff officers and officers of the aviation rear are exerting full effort to see that they would be worthy of the trust of the party and people, and that they would always be ready to fulfill their patriotic and military duty of protecting the accomplishments of socialism.

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DISCUSSION OF TACTICAL VALUE OF PAIRED VERSUS SINGLE AIRCRAFT SUMMARIZED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 4-6

[Article by Col Gen Avn S. Golubev, Hero of the Soviet Union, USSR Distinguished Military Pilot: "With a Consideration for the Combat Missions"]

[Text] A pair or one? This question, which was posed in the title of an article written by Colonel V. Belyayev (AVIATSIYA I KOSMONAVTIKA, No 11, 1981), initiated an extensive and fundamental discussion on the modern tactics of fighter aviation and, in particular, on the pair as the basis for combat formations. Judging from the numerous responses to the article, some of which were published in the journal, this topic does warrant discussion. It once again confirms that flight crews have always been the creators of tactics, and that there is no room for indifference when the discussion turns to combat applications and the training procedures to be used on air warriors.

Scientists, pilots in various command and age categories, including war-wisened veterans and young airmen flying the most sophisticated airplanes, took part in the debate. Let me say frankly that most of the authors of the letters and responses defend the pair as the fire and tactical unit. In this case each person has cited his own more or less persuasive arguments in its defense.

Some comrades feel that inasmuch as the modern fighter possesses firepower that is significantly superior to that of even a flight of airplanes of the past war, the single fighter should be referred to as the fire unit, and the pair should be considered the primary tactical subunit.

There are also the convinced proponents of the lone fighter as the fire and tactical unit. In their opinion modern onboard missile armament and radar equipment make it possible for the fighter to carry out various tactical missions independently, especially in adverse weather and at night. In this case the follower or, as they refer to him, the pilot flying in the rear, acts as a back-up incapable of selecting a target independently and unable to effectively use his greater fire power. Consequently in adverse weather there can be no fire coordination, or all the more so tactical coordination.

Where does the truth lie? How do we resolve the debate? I must admit that this is not one of the simpler problems, because each opinion carries a proportion of common sense and scientific reasoning. Obviously what we need to do is turn to

history and trace the development of air tactics in different periods beginning with the Great Patriotic War.

As we know, new technology and armament directly influences development of tactics. During the war the pair of fighters was confirmed as the fire and tactical unit. The composition of the group--that is, the table forces and the combat formation--were determined in the final analysis by the commander on the basis of the mission and the conditions, which were dictated by the combat situation. But no matter what sort of group was in question, be it a flight, a squadron or a larger subunit, its combat formation was based on pairs, the pilots of which knew the signatures of each other and understood each other intuitively. The latter had fundamental significance because during aerial combat the commander did not have any time to explain his plan. Actions had to be fast, aggressive and precise. And when the follower was unable to deduce the leader's plan, to repeat his maneuver or to perform his own to repel an enemy attack, the situation became more complex as a rule, and sometimes unjustifiable losses occurred in combat. The leader and follower constantly maintained visual and fire communication. The follower provided the commander the support he needed for an effective attack, he exploited the success, under favorable circumstances he attacted on his own, and in the full sense of the word he was the leader's shield. The pair was believed to be indivisible.

The merits and shortcomings of the wartime pair were described well by Colonel V. Belyayev. He also revealed the reasons why the three-airplane fighter flight was rejected in favor of a flight of two pairs. The advantages of a pair were obvious and did not elicit any doubts from the standpoint of maneuverability, coordination and control. The combat training of the flight personnel was geared to such a formation. The most serious attention was devoted to the harmoniousness of the group. The place of the group commander as the combat organizer, meanwhile, was always in front. He led his subordinates, encouraging them on by personal example.

The first generation of jets possessed high subsonic speeds and guns with greater range of fire. In this connection the spatial scope of combat increased. But the role of the leader remained as before. The combat formations were opened somewhat in front and in depth only to permit tactical and fire coordination. The war in Korea, which was started by imperialists of the United States, demonstrated that jet fighters with guns could successfully fight the presently existing bombers and fighters of the same types. The pair was the basis of all combat formations. As before, complex piloting techniques, group harmoniousness and development of close-knit pairs and flights occupied the main place in pilot training.

But bomber aviation soon began engaging in combat activities in adverse weather and at night. Radar sights and rockets were now supplied to fighters so that they could strike targets out of visual contact. The pilot began receiving information on the enemy's location from a ground command post equipped with high-power scanning radar and altimeters. Fulfilling the commands of the fighter controller, the pilot attained the enemy's rear hemisphere and attacked in pursuit. This was the birth of interception tactics. It was precisely at this time that the speed qualities of supersonic warplanes enjoyed considerable development. In general

interception tactics--special mention should be made of this--are the product of the doctrine of nuclear war which the bosses of the Pentagon and the military-industrial complex of the USA have been advertising for so many years, and they continually alter and supplement interception tactics with new elements. American theorists lay great hopes on the nuclear weapon carrier. In their opinion a single high-speed airplane or a small group could utilize verious resources of concealment, camouflage and deception and particular flight profiles to penetrate to an objective and strike it with bombs or missiles. The task of the fighter, meanwhile, is to intercept such an airplane and destroy it before it comes within target range.

These viewpoints were reflected directly in the combat training of fighter pilots. Complex piloting techniques, group harmoniousness and fluid single and group combat began to drop into oblivion. The forefront was taken over by instrument flying and interception: in clouds, at night, in simple and complex conditions, in the stratosphere and at the "ceiling," and then at low altitudes by single airplanes as well. Might this not be the source of the conviction that the lone interceptor, when outfitted with modern weapons and sighting and navigation equipment, could do everything?

Foreign military reviewers noted that the aerial war unleashed by American imperialism in Vietnam showed that the tactics of a single attack did not pass the test as the sole possible form of combat. Jet warplanes that fought in the sky of Vietnam did not carry guns. American pilots believed that their main mission was to fight bombers. But they also found themselves encountering fighters in close combat. After unsuccessful launching of their rockets, the fighter drew closer to each other, and combat became fluid, but there was nothing with which to strike the enemy. Thus the guns were returned to the airplanes, and the follower once again acquired his initial role.

There is more that can be said. At the moment of initiation of combat, as a rule the follower detected the enemy the soonest, and consequently he had a decisive influence on the commander's plan and its implementation. In other words tactical interaction between pilots in a pair and between pairs in a group became paramount. The role of the combat control officer grew dramatically at this time. Viewing the airspace by means of terrestrial radar, he was able to inform the leader about the situation and provide target data.

Changes also occurred in the professional training afforded to air warriors. For example according to the foreign press the American air command devotes a great deal of attention to teaching fighter pilots combat maneuvers and to practicing in pairs (the "elements" making up the basis of all combat formations) and groups, tactics which could assume both an offensive and a defensive nature depending on the evolving situation. There are numerous training and exercise programs for this purpose, in the course of which pilots acquire the habits of interaction and control in combat.

Continuing the discussion on what should be the basis of combat formations--the pair or the lone fighter, it would not be superfluous to once again recall that while technology and weaponry influence the development of tactics, both traditional and

new missions influence the development of technology. It is no accident that fighters intended specifically for achieving air supremacy have appeared in the air forces of the leading capitalist countries. The missions of fighters and the principles of their combat application remained classical--covering the troops and supporting other aviation arms and services. In troop combat support, in the least it would be senseless to expect that the troops would be attacked by single airplanes. Of course, this possibility is not excluded in relation to certain objectives. But if real damage is to be done, a group must attack, and consequently the raid would have to be repelled by a group having the pair at its foundation. Moreover it would be practically unrealistic to cover the troops with lone airplanes.

Experience also shows that when groups encounter each other in aerial combat, after the opponents exchange blows from long range, as a rule the encounter transforms into close-in fluid combat, together with all of the classical forms inherent to it and the use of close-range weapons. This means that maneuver and fire assume equal importance. Here again the pair becomes the fire and tactical unit.

There can be no doubt that given the dynamic characteristics of modern fighters, it is not always possible to maintain fire coordination in a pair. When such coordination falls apart during particular maneuvers, the pilots must maintain tactical communication--that is, each must must know what the other of the pair is doing, and act in accordance with a single tactical plan. Consequently the leader and the follower must have had equal aerial and tactical training, and they must go on their mission with well rehearsed maneuvers and well conceived contingencies.

Surprise plays an important role in victory in all aerial combat. "The one who spots the opponent first wins"--this rule remains valid today in cases where the airspace is viewed from both above and below, and apparently it will retain its significance in the future. Surprise is a decisive prerequisite of victory. It can be achieved by coordinating the actions of the leader and the follower at all ranges. Using all of the terrestrial and onboard observation resources, the pilots assume an advantageous position, they separate, and before the enemy is able to assume opposing tactics, one of them attracts him by provocative actions and sets up conditions permitting his pair-mate to make an effective attack.

Without a doubt combat maneuver requires high piloting skill, clear, coordinated interaction and mutual understanding. Moreover pilots in a pair must always be ready to switch their roles--that is, the strike must be made by the pilot in the more-advantageous position. The same can be said for pairs in a group. Assume that a group of six fighters has taken off on a mission. The combat formation is organized in such a way that one pair acts as a decoy, the second makes the strike, and the third covers the first two pairs and exploits any success. But does this mean that these responsibilities will be maintained until the end of the flight? Not at all. The situation may evolve in such a way that the back-up pair becomes the first to strike. In this case the other pair must immediately switch to covering tactics, or act as a decoy and set the stage for an indefensible attack. Here lies the essence of tactical interaction and success in combat.

A similar picture can be seen in adverse weather. I think that the assertion that two crews flying separately without visual contact do not make a pair is wrong.

Whether or not they can see one another, or fire support is present or absent between them, they pursue a single goal in flight.

But let us return to the lone airplane and see what its prospects are. The period in which interception tactics developed provided a powerful motivation for improving the resources for monitoring the airspace and control, and it laid the foundation for the methods of training pilots in instrument flying. It stands to reason that depending on the situation and the particular missions, the commander may at times send a lone airplane out on an assignment. It would be totally wrong to reject solo actions. A lone airplane may be sent out against a lone opponent in adverse weather, day or night, though not against groups, as thought by some authors persuaded of the effectiveness of long-range missiles. Incidentally, we should note that such battles are not decisive to attainment of air superiority, being only particular cases. The main purpose of the fighters is to fight aviation that has always been used, and apparently will continue to be used en masse.

Some authors responding to the article touched upon the procedures used in fighter pilot training, suggesting their own proposals for its improvement. They devoted special attention to tactical training. This is encouraging. This is the way it should obviously be, inasmuch as tactics, maneuvers and the methods of attack are selected by the pilots themselves as they prepare for a mission; they use in practice what was arrived at through a process of long deliberation, extensive calculations and verification in the air. It would be pertinent to recall here a well known truth: There are no poor maneuvers, tactics and methods, and there cannot be any. If a crew fails, it means that the tactic they used did not correspond to the situation, or that it was implemented incompetently.

But of course, group aerial combat is the main thing in fighter combat training. This training must be organized as follows: It begins with piloting techniques as the basis of combat maneuver; then follows group harmoniousness and cohesiveness of pairs and flights; flights performed with the purpose of assimilating the use of sighting equipment represent the phase of preparation for group combat; this is followed by mock combat between pairs, flights and various tactical groups. Furthermore, aerial combat entailing interception in adverse weather remains a typical mission for fighters.

Without a doubt we must consider the individual qualities of the pilots when training them for aerial combat. We must devote more attention to developing tactical thinking and independence in the planning of flight missions. Instructors and commanders possessing considerable flying and pedagogical experience must make an effort to improve the programs.

As far as change in the name of the pair is concerned, unfortunately none of the authors made note of what is most important. The pair is not only a fire and tactical unit; it is also an official organizational structure serving as the foundation for the system of organization, support, control and training. It would be easy to break down the evolved system. It would be much more difficult to build and debug a new system satisfying all of the requirements of troop combat readiness and fighting efficiency. I believe that the existing system is fully in keeping with the spirit of the times, that it has been worked out well, and that if problems and failures do occur in some areas, as a rule they are caused by local mistakes in organizing life, service and combat training.

Concluding the discussion of the article "A Pair or One?" I would like to say that it would be wrong to limit the discussion just to fighters alone. For example modern fighter-bombers and reconnaissance airplanes possess very high speed and maneuver characteristics that necessitated their organization into combat formations in which the pair is the basis. This affords them a number of advantages in piloting, maneuvering, interaction and control.

In the final analysis this is a problem that our military aviation theorists must solve. I am sure that they will thoroughly discuss the raised problem and come to a unanimous opinion that will doubtlessly be reflected in the guidelines.

I would like to thank all participants of the discussion, who demonstrated that pilots are deeply concerned about their professional skills and that they try to persistently raise the combat readiness of the valorous air force from day to day. This is a manifestation of the great force of patriotism, the continuity of generations and the high responsibility displayed toward protecting the peaceful skies of our motherland--the Union of Soviet Socialist Republics, the glorious 60th anniversary of which we will celebrate in December of this year.

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EFFECTIVE LEADERSHIP, COOPERATION MAKE FIGHTER FLIGHT SUCCESSFUL

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, No 82 (signed to press 1 Oct 82) pp 6-7

[Article by Capt N. Kuzyak, military pilot 1st class: "Our Flight Commander"]

[Text] "South" was trying to foil the river crossing by the ground subunits at all costs. Savage aerial combat developed in the air. Soon our flight received its mission as well: preventing "enemy" aviation from getting to the crossing.

Captain A. Belyayev called us together in the classroom. The time for preparations was extremely limited, but out flight commander was able to utilize every minute. He poses his questions accurately, and he requires answers that are just as clear. Even when arguments arise, he does not let them digress from the main point. On hearing the different opinions, Belyayev made a grounded decision. The most realistic contingencies of initiating, conducting and disengaging from combat were selected. The combat formation was determined, and the time frame was ascertained.

At the appointed time the flight reached the area of its standing patrol. As had been planned, they divided into pairs and began independent search for the "enemy."

For the moment the air was uncluttered. Below, the troops were crossing the river. The tanks raced toward the bank and dropped into the depths without hesitation. Equipment--prime movers pulling guns and loaded trucks--moved in strict order over previously laid pontoon bridges. It was a captivating spectacle. But we had our own mission. We examined the space visually and with the help of onboard radar.

Captain Belyayev was the first to detect the "South" airplane with his sight. Persuading himself that this was the "enemy," he locked onto the target and "launched" a missile outside of visual contact. Soon Captain A. Pogodin and I also detected a target: A flight of "South" airplanes was proceeding on a course to the crossing. I reported to the commander by radio. But the "enemy" noticed our presence as well, and began to maneuver energetically. For an instant two silhouettes flashed by in the periscope. This was Belyayev and his follower, rushing in for the attack in an ascending maneuver. The follower pair of "South" airplanes separated away from the formation and began a distractive maneuver to allow their comrades to break through to the crossing. The commander deduced this plan and ordered me to attack.

The "enemy" began a vertical climb. I kept him in sight. But the pursued airplanes had no intention of returning to their own territory. They attempted to assume a course toward the crossing. I estimated the most advantageous trajectory by which the "enemy" could reach the target. Using a prearranged maneuver, I signalled "Do as I do" to Pogodin and performed a countermaneuver. I determined the point at which intercept would occur.

My calculations turned out to be correct. We intercepted the target at the approaches to the crossing from an advantageous position and made a simulated missile strike. Belyayev and his follower also met the "enemy." The flight recorder data confirmed that the "South" flight had been annihilated. The attack on the crossing was foiled.

Of course the missile launchings occurring in aerial combat during an exercise are simulated, but this should not dampen the ardor of the pilots in any way. He who prepared seriously and thoughtfully for training combat will necessarily be successful in a real encounter.

More than a year has passed since exercise "Zapad-81". Experience acquired in the exercise became the foundation for further improvement of combat proficiency. Progress in aerial skills comes not through copying but through creative thought. Here as well there can be nothing that is unimportant. Each of us knows that fulfilling a flying assignment with an excellent score is a matter of honor, that orders of a commander are sacred. The air warrior must direct his initiative at fulfilling orders as best as possible. After all, a pilot enjoys extensive possibilities for creatively solving arising problems.

During the critique of the aerial battle the flight commander noted that there had been a share of risk in the actions of our pair. The fact is that had the "enemy" altered his maneuver, interception at the calculated point may not have occurred. But the risk was justified. Captain Belyayev also noted the good harmoniousness of the pair, repeating his favorite expression: "Only a coordinated pair can be a real striking force."

I recall that not everything went smoothly with us. On occasion at the beginning of an attack my pair-mate sometimes separated away and lost visual contact with me. It seemed to me that he was to blame for this. But Belyayev patiently explained that until the follower learns to understand the leader in the air, nothing reasonable could be expected. To be honest, I did not agree with him right away. Is the leader really obligated to constantly watch for the follower? The main thing is to detect the "enemy," and to attack and annihilate him with the first attack. There is no time to think about a pair-mate. Let him keep up with me.

"But if you lose your follower, you open yourself up to attack," Belyayev argued. "It is important to do as much damage to the enemy and to remain unharmed yourself. That's where the art of aerial combat lies!"

The commander's words made me think. In the end I agreed with his arguments, but I could not understand why my follower kept breaking away from me. Here again Belyayev came to my assistance. Flying together with me in a pair, he attentively studied my actions. Back on the ground he explained that I committed my airplane

to maneuvers too energetically and that I worked the engine control lever too abruptly, depriving my follower of his thrust reserve. He showed me how to use the afterburner in formation.

After this I began to monitor my own actions in the air more attentively, and my follower never lost me again. This opened my eyes up to many things. But the main thing was that I came to understand that the cause of failure must be sought within oneself, rather than blaming a comrade. On the other hand I became persuaded that concern shown toward a comrade is paid back a hundredfold, especially in a situation in which the outcome of a battle is being decided. We must not forget that the follower is also an air warrior, and that the success of an attack depends in many ways on how well he understands the leader and how much faith he has in him. Is this not a manifestation of true friendship, interaction and mutual assistance?

No less important is good contact between pilots and specialists on the ground. Firm friendship between flight crews and technicians goes a long way to insure successful completion of combat training missions.

Once during an exercise our flight was preparing for aerial combat. When a scenario input came in--we were to strike some ground targets jointly with other flights--we had to quickly redo our engineering and navigational calculations and change our armament. Captains of technical service B. Sizov and N. Samofalov and Senior Lieutenant of Technical Service V. Guzikov completed their task in excellent fashion, surpassing the existing standards. Let me anticipate an objection: What does this have to do with friendship? After all, the technical personnel are obligated to perform their obligations with high quality, and every specialist bears responsibility for what he does.

This is doubtlessly so. But at the same time there is a difference between a person who performs his obligations formally and one who does so with devotion, with love, knowing a friend will be flying the aircraft he has prepared and that not only the success of the flight but also the life of this friend depends in many ways on how well the specialist has done his work. I am convinced that when relationhips between a pilot and a technician are sincere and benevolent, the possibility of unconscientious work by ground personnel is absolutely excluded. This is precisely why we have not had any violations of technical discipline in our flight for many years. Our pilots respect the labor of the technicians, valuing it no less than their own.

It has become the rule in Captain Belyayev's flight to keep the specialists informed about flying, to thoroughly describe aerial battles and work at the practice range. In this case we never forget to thank our comrades in arms for their conscientious labor. All of this improves the microclimate in the collective and unites efforts in pursuit of the main mission--raising combat readiness. It may be said that none of us can ever recall having a lack of confidence in the reliability of the equipment. Every pilot is firmly convinced that the technical crew would never let him down or allow an airplane to fly without being adequately prepared. This is a very substantial component of combat readiness.

I have had many opportunities to see, as a casual obaserver, the flight performing and maneuvering in the air. One could hardly find a pilot who was not delighted in the coordination of the action of his colleagues or who was not disappointed by mistakes and rough flying. This is why I can fully understand commanders who hold those to blame strictly answerable for their mistakes during critiques and use a sharp tone with them. But I should mention one good thing about our flight commander: We have never heard him use coarse language. Captain Belyayev is always restrained and calm, but he is exacting, strict and demanding. To be honest, even experienced pilots sometimes make mistakes. And he patiently digs down to their roots. And he does not relax until he is sure that his subordinates have completely assimilated what is required of them.

I recall a time when we were practicing combat turns and half-rolls as a flight. The trailing airplane in the formation has the hardest job of all in such flight. Using airplane models Captain Belyayev demonstrated on the ground what would happen with each maneuver and what had to be done and how. The proficiency of the pilots improved from one flight to the next. Of course many mistakes were made, but the commander's patience persisted. He patiently explained, demonstrated and taught. And the fact that his subunit earned a high score from the command for participation in the last exercise is quite natural.

Some of the men in the flight have now been replaced, but the desire to master new summits in combat training remains. Experience acquired in combined-arms exercises is being studied attentively and scrupulously. This experience is now being used to train competent air warriors and dependable defenders of our beloved motherland.

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BOMBER REGIMENT SHARES SECRETS OF ITS SUCCESS

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[Interview with Guards Col V. Sadikov by an AVIATSIYA I KOSMONAVTIKA correspondent: "A Year of Great Accomplishments"; date and place of interview not given]

[Text] A year has passed since the time when the pilots, navigators and specialists of the Guards bomber air regiment commanded by Guards Colonel V. Sadikov appealed to air force personnel to initiate a socialist competition with the catch-phrase "Dependable protection for the peaceful labor of the Soviet people!" The Guards successfully completed the tasks posed for the training year. It is with worthy deeds that they are greeting a glorious jubilee--the 60th anniversary of the USSR's formation. How much has the military proficiency of the airmen increased, and in what way was the past training year noteworthy to them? Our correspondent met with Guards Colonel V. Sadikov and asked him to reply to a number of questions.

[Question] Vladimir Aleksandrovich, what motivated the airmen of the regiment to initiate the competition in the air force?

[Answer] Let us mentally return to November of the past year. The pilots, navigators, engineers, technicians and air specialists were living under the influence of the indelible impressions created by decisions of the 26th CPSU Congress. As with all of the Soviet people, the airmen of the unit were greatly inspired by the work of this party forum.

Everyone worked with special enthusiasm, with full effort, making effective use of every training hour to improve aerial, fire and tactical skills. Naturally this would have been impossible without high organization and firm order at the post and the airfield. This is why the fight for high qualitative indicators in fulfillment of combat and political training plans and for flight safety acquired such great force.

For 2 years the collective retained its title of outstanding regiment. Our successes were noted by the USSR minister of defense, who awarded a pennant to the regiment for courage and military valor. Most of our pilots and navigators are masters of combat application; one out of every three crews is an outstanding crew. Owing to the purposeful indoctrination work of commanders, political workers and the party and Komsomol organizations the personnel completed the past training year with high results, and by their selfless labor they multiplied the heroic traditions of the frontliners. As a result we once again took one of the leading places in the socialist competition in the air force.

As we know, success does not come about spontaneously. It comes only to those who spare no effort and energy in their daily military labor. It comes to those who, after reaching one goal immediately begin working on another, even higher goal without reducing their pace. Most of the communist executives of our regiment may be included among those who are concerned and exacting toward themselves and their subordinates. Included among them are officers Buchenkov, Pyl'nev, Ivasev, Klyuzhev and Yasnogorodskiy.

It has now become the law for the best airmen to work with full effort, to achieve new successes in improving professional skills every day and to evaluate one's military labor strictly. To become relaxed with present achievements means to invariably experience a decrease in training effectiveness and discipline. If we do not go farther and achieve more, we lose our positions and concede to our rivals in competition. But this is dishonorable to Guards soldiers. All of these ideas were the subject of incisive discussions at open party and Komsomol meetings. The pilots, navigators, engineers, technicans and specialists of the supporting subunits talked about the need for multiplying the accomplishments of the military work. Weighing their possibilities and relying on accumulated experience, the Guards soldiers adopted new, even higher pledges in honor of the 60th anniversary of the USSR's formation. They appealed to all airmen of the air force to take an active part in the competition conducted under the catch-phrase "Dependable protection to the peaceful labor of the Soviet people!"

[Question] Please tell us how the fight to satisfy the pledges went on.

[Answer] First of all we decided to retain the regiment's outstanding title. This required a great deal: deep study of complex aviation equipment and weapons, proficient handling of the latter, development of the ability to perform all combat training missions day and night as individual crews and as groups in all weather, and achievement of effective results in competitions on tasks and standards. The personnel decided to reduce the time to make crews combat readiness by 6 percent.

The following question may arise: Precisely what do we mean when we say that we increased our pledges in the jubilee year? Initiating the competition in the air force, we focused our main attention on the quality of our effort in complex forms of combat training. Thus we were required to maintain a score of not less than 4.65 in piloting technique, navigation and the basic forms of combat application throughout the training year.

We had the experience, though it was not easy to acquire. As an example the subordinates of one of the squadron commanders, Guards Lieutenant Colonel Buchenkov, displayed high flying skill many times. Recently they prepared aviation equipment for take-off in difficult weather and on an extremely tight schedule during a tactical flying exercise. The umpire posed the mission of surmounting additional "enemy" antiaircraft resources on the way to the target and of making a group maneuver in altitude and course. Moreover our crews were subjected to surprise fighter attacks in the air. Nevertheless all of the crews, including the youngest ones commanded by Guards captains Matveyev, Sergeyev and Cherneyko, came right over the target and subjected it to an expert annihilatory blow.

There are many such examples in the combat training of our airmen. They attest to their constant readiness for combat.

But we cannot ignore the fact that the title of outstanding regiment imposes many obligations, that the demands placed upon a leader are twice as great. The personnel must perform assignments in adverse weather over featureless terrain and over the tops of mountains rather often. Moreover a turnover periodically occurs in the collective's personnel. Novices replace top-class air warriors, technicians and mechanics. Simultaneously with working themselves in, they must execute the regiment's mission, which themselves get constantly more difficult. Understanding this, the people adopted the following pledge: "Persistently nurture high moral, political and combat qualities in oneself, develop an active life position, and hold sacred the glorious revolutionary, combat and labor traditions of the Communist Party, the Soviet people and their armed forces."

[Question] Comrade Guards Colonel, to what extent were the pledges adopted in honor of the 60th anniversary of the USSR's formation satisfied?

[Answer] The final results are not yet in, but we can already conclude that the collective has kept its promise. By as early as August-September single crews and entire subunits reported complete fulfillment of their adopted pledges. In particular most of the airmen are now fully trained for combat activities day and night in various weather conditions, and the craft commanders and navigators have acquired and confirmed high class qualifications. The personnel are making competent use of the possibilities of the aviation equipment, they are using the best procedures in operating and serving the complex navigation systems, and they are persistently improving their tactical and fire skills.

The labor of military pilot-snipers and navigator-snipers officers Derbenev, Shevchenko, Klyuzhev and others earned state awards and the gratefulness of the air force commander in chief.

Specialists of the air engineer service have also earned a good word. In comparison with last year the engineers, technicians and mechanics significantly raised the excellence of the service provided to the airplanes. As a result the machine units and systems of the aircraft have never failed through a fault of theirs. Multi-colored battle leaflets and pictorial newspapers were devoted many times to the best Guards specialists--Captain of Technical Service Budivskiy, Senior Lieutenant of Technical Service Grudinin and others.

Officers of the air engineer service made a great contribution to raising the regiment's combat readiness. Thus 90 percent of the technical groups have earned the outstanding title, and 80 percent of the technicians and mechanics upgraded their class qualifications. The inscription "Outstanding" is now borne by the fuselages of most of our airplanes. During tactical flying exercises many specialists of the regiment's air engineer service worked successfully with skeleton crews, and they did the jobs of technicians in associated specialities. On the eve of USSR Air Force Day the best engineer service, which is headed by Guards Engineer-Major Stoyanov, was awarded a perpetual prize and rewarded by the air force commander in chief.

Other achievements we can name include the successes of our efficiency experts, who submitted and introduced more than 100 proposals. Many specialists reproduced the labor outlays associated with work on the regiment's parking pads, in its technical maintenance unit and in the field, and they raised the excellence of services provided to aviation equipment. A savings of electric power, fuel and other materials was achieved.

This year the maintenance of our post and the airfield improved as well. The innovators worked hard, competing under the slogan "Exemplary Life in Every Garrison." Much was done to improve the training material base.

[Question] One last question: How was progressive experience utilized to achieve high indicators?

[Answer] First of all we turned special attention to the flight instructor training of the squadron commanders. They have a decisive role in airman training and indoctrination. During rallies and practical flying conferences we started discussing more deeply and actively the way the integrated approach was being used in the subunits to train and indoctrinate the airmen. After all, it was quite recently that some commanders and chiefs in the unit were not devoting enough time to indoctrination. We made reports by subunits commanders on the state of affairs in the collective and on fulfillment of pledges a more frequent practice during rallies; moreover the discussion was frank and principled. This encourages executives to study the mood and work qualities of subordinates more seriously and to delve more deeply into their life, training and personal needs. The officers are working hand in hand with active party and Komsomol members, and they are relying on their initiative in the execution of important missions.

While in previous times we had turned our attention mainly to indoctrinating the young, now we also discuss the course of training and achievements of persons with high qualifications. We have one officer (I am intentionally not giving his name) who has an irreproachable knowledge of his responsibilities. But once we asked him: Have you ever helped any of the young pilots in their training, do you know how well they are doing with the documents and technical literature, do you know how things are going in their families, do you visit the barracks often, and what sort of indoctrination are you providing to subordinates? He was unable to answer many of these questions.

Of course such cases are sporadic, but they have become the topic of serious discussion at offical meetings and conferences. Some officers ended up hearing

valid reproaches, and they reexamined their style of work with personnel. The officers began to read the works of classicists of Marxism-Leninism and the recommendations of pedagogics and psychology more often.

Let me note that publicity on combat traditions has become noticeably more active in recent times. We have something to be proud about. The regiment had endured all of the severe trials of the Great Patriotic War with honor. The acts of heroism committed by frontliners lieutenant colonels Vavilov and Nazarov and Captain Romanov are remembered well by the officers of the regiment. Our fighting collective has nurtured eight heroes of the Soviet Union.

In their talks with people, political workers officers Demidenko and Alloyarov not only describe the heroic deeds of the regiment's soldiers during the war and the traditions of the Soviet Guards, but they also emphasize the roots of the heroism of Soviet soldiers and clearly reveal the ways of nurturing the best fighting qualities in airmen. After young pilots and navigators successfully complete their flying assignment, their accomplishments are broadcast by the local radio station. Lectures and evening meetings with war veterans and the best producers promote development of high moral, fighting and psychological qualities in the personnel.

The content of ground training has been improved, especially now that special electronic apparatus is being employed. While in former times the instructors had to concentrate all of their attention on the sequence of operations and the sharpness with which they were fulfilled, now they also show concern for intensifying the training process, keeping track of how much time is spent on sighting, detecting and annihilating antiaircraft resources.

The fight to surpass the combat standards has become the main concern not only of pilots and navigators but also specialists of the air engineer service. Not that long ago the unit's commission for invention affairs decided to introduce a sighting trainer proposed by Guards Captain Dobroskokov. Not only the young but also the experienced airmen eagerly use the new invention.

It is important for every officer--be he a pilot, navigator or specialist of the air engineer service--to have a perfect knowledge of modern aviation complexes, of the laws of flight service and of the rules of handling the equipment. This is why in addition to planned training, the regiment has started conducting technical conferences and quizzes and competitions on the equipment more often. The work of circles led by officers Nasennik, Strukov and others has become more active.

Competition in the subunits plays a great role in deep assimilation of equipment. High exactingness towards subordinates is displayed by Guards Engineer-Lieutenant Colonel Fursa and Guards Engineer-Major Posokhov: While in the past, executives of the air engineer service combined summarization of the results of combat training or technical analyses with analysis of competition progress, now records are being kept separately on competition between collectives or individual airmen. This is being done so that all new and progressive ideas could be discussed not in haste but in details, such that the mistakes or violations could be analyzed in detail and one's standing in the competition could be determined objectively. All of this raises the creativity of the specialists and their responsibility for successfully completing their missions.

By exchanging experience with our rivals we were able to improve our combat training indicators and keep our pre..ise. But there is no limit to improving flight proficiency. I think that in the new training year, the pilots, navigators and specialists of the air engineer service will not give up their positions, that they will multiply their accomplishments in military labor and in strengthening the unit's combat readiness.

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EFFICIENCY REPORTS CREATE BASIS FOR FURTHER WORK WITH OFFICERS

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[Article by Lt Gen Avn L. Klochikhin, chief, Air Force Personnel Directorate, USSR Distinguished Military Pilot: "Constant Concern for Air Force Personnel"]

[Text] The Soviet people and soldiers of the valorous armed forces are greeting the 65th anniversary of Great October and the 60th anniversary of the USSR's formation with new remarkable achievements in the development of the economy, science and culture. These historic events, which are inseparable from one another, opened the road for free labor, social progress and peace. They occupy a special place in the life of our great motherland and of all progressive mankind, representing the triumph of Lenin's immortal ideas and their insurmountable power, which gives birth to the creative initiative and energy of the broad popular masses.

Within a relatively short period of history, under the guidance of the wise Leninist party the USSR has created a powerful economic potential, a highly developed industry and mechanized agriculture, and science and socialist culture were raised to the top level. An indestructible brotherly family, into which all nations and nationalities of our country were brought together on a voluntary basis, formed and grew strong. The economies of all of the republics are developing dynamically and growing strong in this friendly family, and with every year their material and spiritual wealth multiplies.

The CPSU Central Committee decree "On the 60th Anniversary of Formation of the Union of Soviet Socialist Republics" emphasizes: "An atmosphere of collectivism and comradeship, unity, friendship of all nations and nationalities, moral health of the society, real democracy and social optimism, and intolereance of deviations from socialist morality are the most important facets of the Soviet way of life." This pertains fully to our glorious armed forces as well.

Decisions of that May (1982) CPSU Central Committee Plenum elicited enormous political and work enthusiasm in military airmen. As with all Soviet people, they were deeply pleased with CPSU Central Committee general secretary, Comrade L. Brezhnev's report "On the Food Program of the USSR in the Period to 1990 and the Measures of its Realization," and the decrees of the plenum. These historic

documents are new and clear evidence of the Communist Party's concern for the people's welfare, for strengthening the country's power and for consistently implementing the course planned out by the 26th CPSU Congress.

Responding to the party's concern, air force personnel are gathering their strength in the fight for new military achievements, they are raising the intensity and quality of combat training, and they are making an honorable contribution to completing the tasks proposed by the 26th CPSU Congress.

Problems associated with personnel selection, placement and indoctrination and with their mastery of the Leninist work style enjoyed additional development in the documents of the congress. CPSU Central Committee general secretary, Comrade L. I. Brezhnev noted the following in the Accountability Report of the CPSU Central Committee to the 26th CPSU Congress: "We need to develop a work style which would organically unite diligence and discipline with bold initiative and resourcefulness. Practicality and efficiency with an aspiration for great goals."

Our party has always devoted great attention to the selection, placement and training of military personnel, believing this to be one of its most important tasks. Owing to the concern of the CPSU and the Soviet government, today's air force is staffed by highly idealistic, professionally well trained officers and generals that are devoted to the socialist motherland, and who for the most part are communists and Komsomol members. Most officers are successfully fulfilling the responsibilities laid upon them.

Efficiency reports have an important role in the overall system of work with military personnel.

V. I. Lenin believed that no policy can be implemented unless it is expressed through the appointment and rotation of people, having in mind appointment and rotation in the interests of the policy. Efficiency reports have been written throughout the entire history of Soviet Armed Forces with the purposes of insuring correct selection, placement and indoctrination of officer personnel. Their purpose is to provide an objective rating of the political, official and moral qualities of each general and officer, to determine their correspondence with the posts they occupy and the prospects of their future use in service, and to create a reserve for promotions and for training.

Writing efficiency reports is a living, creative thing upon which the fate of every officer and general depends to a significant extent. Thus if we are to objectively rate their military labor, we must fully reveal their capabilities, demonstrate their prospects for growth, prevent them from making mistakes and help them clear up deficiencies in service. The results of efficiency reports are used to draw up long-range plans for personnel selection, indoctrination and placement and for raising their occupational proficiency and ideological maturity.

Long-range planning is something required by life itself. After all, without predicting and without forecasting how the personnel situation will develop in the new few years, we cannot work with them effectively and purposefully. Long-range plans must be constantly improved, refined and filled with concrete content.

A broad complex of organizational and party-political measures aimed at improving indoctrination and raising the occupational qualifications of officers was completed last year in the course of preparations for writing efficiency reports and during the time of their writing. These measures affected all aspects of the official and public activities of the officers. The results of the efficiency reports demonstrated the multifaceted nature of the work being done by commanders, political organs and party organizations in ideological, political and military indoctrination of officers and generals, and in formation of their scientific world outlook and communist conviction.

In the air force, the writing of efficiency reports was accompanied by a great upswing in political work and labor, directed mainly at mobilizing military airmen for high-quality, effective fulfillment of the combat and political training plans, and raising combat readiness and at strengthening military discipline. The party-political work that was conducted played a positive role in raising the responsibility of officers and generals for fulfillment of their official and party duties and for their ideological, political and professional growth.

In their efficiency reports, airmen are rated in terms of their Marxist-Leninist and military training, their organizational capabilities and their moral-political and volitional qualities. These characteristics were examined not only from the positions of today's high requirements but also with a consideration for their future use as officers and generals.

Our efficiency reports were written in organized fashion, and by the established deadlines. Great credit for this belongs to the commanders, political organs, party and Komsomol organizations and personnel officers. Worthy and promising officers were revealed. Their correct placement right during the course of the writing of the efficiency report strengthened a number of important areas and units with competent and capable leaders. The reports were written efficiently in the air units headed by Colonel V. Archegov and Lieutenant Colonel V. Rossokhin.

In the course of the last cycle of efficiency reports the valuable experience in training and indoctrinating officers and generals was generalized, and shortcomings were revealed. The results of the efficiency reports provided commanders with rich materials for analysis and thinking on ways for further improving the style of work with officers in light of the requirements of the 26th CPSU Congress.

In my opinion serious attention should be devoted primarily to those officers whose efficiency reports pointed to shortcomings. Their elimination is the concern of more than just the officer himself. His immediate supervisors must help him as well. We must remember that maximum attention, wisdom, patience, tactfulness and a fatherly concern for the individual must be displayed in the complex process of training and indoctrination, which is associated with the fate of the people. It is not enough to just approve the efficiency reports, publish them and summarize the results. The main work begins namely after the efficiency reports are approved and published. It is important for all of the conclusions and recommendations spelled out in them to be utilized to the fullest extent possible to improve the selection and placement of officers and to strengthen purposeful individual indoctrination of officers.

We must consider the mistakes of the past, when officer efficiency reports only indicated specific shortcomings, and no efforts were undertaken to correct them: Time passed and no improvements were observed. We can consider as an example Engineer-Major V. Koshits, who was relieved of his post. Was his case handled too harshly? After all, this person is highly trained in professional respects, and he knows his business. What motivated his senior supervisors to make such a decision?

Engineer-Major Koshits does in fact work to his full capacity, but unfortunately for some time his personal behavior had not been a good example to subordinates--he abused alcohol. The commander and the active party members talked with Koshits many times, attempting to help him correct his ways. But he made no proper conclusions from their efforts. Of course the unfortunate finale may have been averted, had the appropriate chiefs turned more-persistent attention to one of his previous efficiency reports, in which it was noted that he tended to drink. But no one heeded this fact.

As we can see, writing an objective and complete officer efficiency report is only the beginning of a great effort in the course of which the conclusions of the rating commission must be properly realized. Each officer must be approached attentively and tactfully, and excessive zeal, indifference and stereotypy must be avoided. The effectiveness of all implemented measures and their influence on the results of the combat and political training of the airmen and the morale of the military collectives will depend in many ways on the quality of this work and on the initiative of the people. Therefore the recommendations spelled out in the conclusions of the rating commissions must become the foundation for solving problems associated with subsequent utilization of the officers in their service. Staffs and party and Komsomol organizations are called upon to provide considerable assistance to commanders and personnel organs in this important work.

What should be the elements of the work to realize the conclusions arrived at from the efficiency reports? In my opinion this work must consist of the following basic measures: First of all we need to carefully analyze the work that has been done, and objectively evaluate the correctness of the conclusions made and their correspondence with what the efficiency reports contain. Whenever any kind of shortcomings are revealed, steps must be taken to eliminate them, it should be determined whether or not the formations, units, institutions and schools are staffed with enough officers, and the areas into which capable people must be channeled with the purpose of insuring successful completion of the tasks associated with raising troop combat readiness, strengthening discipline and maintaining a firm order in the units and subunits must be defined. This analysis must be deep, with an eye on the future. Its data must be used to develop plans for selecting and placing personnel throughout the entire period between efficiency reports, and control and candidate lists should be compiled.

The selection and placement of military personnel is a complex, important business requiring a thoughtful approach and the active participation and close interaction of commanders, political and personnel organs and party organizations. This work must include a complex of measures insuring not only comprehensive study of officers in their practical work but also creation of the most favorable conditions for their preparation for higher positions, and their development following appointment to new positions.

In order that officers could be studied more deeply, long-range work with them is planned on the basis of the efficiency reports. This work is aimed at preparing candidates for higher positions, recommending them for training and promptly replacing generals and officers who had served the required time on active military service and who must leave for health and other reasons. The persons to take the places of such comrades are determined. Long-range plans are drawn up for a period of 3-4 years. Organizing daily effective work with officers and successfully implementing the plans are among the main tasks of commanders, political organs, staffs, personnel organs and party and Komsomol organizations. Special attention should be devoted to young officers. It is important to prepare competent, resourceful air warriors, to develop their active life position, to form firm moral and fighting qualities and to teach them the art of training and indoctrinating subordinates.

The qualities that are needed of a military leader most of all today were named in the report given at the 6th All-Army Conference of Primary Party Organization Secretaries by CPSU Central Committee Politburo member, USSR minister of defense, Marshal of the Soviet Union D. F. Ustinov. They are, first of all, competency, a sharp feeling for the new and the ability to take responsibility for solving complex problems, to take notice of and support initiative in time, and to mobilize the will and energy of the personnel. The unique features of troop command and control require, from military leaders of all ranks, profound thinking and confident and competent actions in situations of extremely limited time and enormous moral, psychological and physical loads.

Competency is acquiring special significance today. "...in order to control," said V. I. Lenin, "one must be competent, one must completely understand all of the conditions of production down to the finest points, one must know the equipment associated with such production, at its contemporary level, and one must have a certain scientific education."

Of course there can be no discussion of competency if the military leader does not possess a sufficient reserve of political, operational-tactical, military-technical and military-pedagogical knowledge. Competency consists precisely of the ability to systematically and purposefully conduct the political and military indoctrination of the personnel, to conduct combat and political training with high quality, to organize the work of subordinates strictly according to the regulations and to maintain discipline and military order at the required level.

This year many units and subunits achieved new successes in improving professional skills and raising combat readiness. The competency and personal examples of commanders and their purposeful work aimed at indoctrinating and training subordinates and further raising the combat readiness of the military collectives played a major role in these achievements.

Working on their complex combat training missions, the personnel of our air force clearly revealed their better qualities many times--courage, heroism and steadfastness. Thus in peacetime, defending the air borders of the motherland, the fighter pilot Communist G. Yeliseyev rammed a hostile airplane. He was awarded the Hero of the Soviet Union title posthumously.

Our airmen in the limited contingent of Soviet troops in the Democratic Republic of Afghanistan are demonstrating high moral and fighting qualities. Pilots have proven themselves to be fearless internationalists. The act of heroism committed by military pilot Major V. Shcherbakov was already reported in AVIATSIYA I KOSMONAVTIKA. Once his comrades in arms found themselves in a critical situation, but Communist Shcherbakov and his crew rescued them despite the danger. Officer V. Shcherbakov was awarded the Hero of the Soviet Union title for examplary fulfillment of military duty and for the courage he displayed.

The acts of heroism committed by military pilots B. Ryabtsev, B. Kapustin, Yu. Yanov, Yu. Solopov, P. Shklyaruk, N. Osipov and V. Kubrakov, who sacrificed their own lives to save others, are permeated by patriotism and the highest morality, nobility and humanitarianism.

Every air force officer and general must competently utilize the valuable combat experience of both the years of war and the hard days of peace in his practical work.

An inspection revealed that all units and formations of the air force are making an active effort to implement the conclusions arrived at on the basis of efficiency reports. The results of the efficiency reports were summarized and discussed at a meeting of the Air Force Military Council. The appropriate decisions were made, long-range plans were corrected, and control and candidate lists of officers recommended for promotion or for training were drawn up.

It is the duty of commanders, chiefs, political and personnel organs and party and Komsomol organizations to do everything they can to utilize the results of the efficency reports to mobilize the personnel to raise the combat readiness of the units and subunits.

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OUTSTANDING BOMBER CREW FLIES IN TACTICAL EXERCISE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 14-15

[Article by Col Ye. Besschetnov: "Taking the Proven Road"]

[Text] It was growing dark outside the windows of the airfield hut when the aircraft commanders and navigators received their final instructions, finished considering the details of their assignments and completed their preparations for night flying.

"And now go to your airplanes. Everyone is to be ready," squadron deputy commander Major V. Popel' ordered.

Surveying his officers unhurriedly, as if checking to see if all had understood him well, Vasiliy Georgiyevich went to the exit first. A shadow of concern hovered over his usually cheerful face and the clear gaze of his blue eyes. Thoughts about the forthcoming assignment would not leave the officer alone. The four long-range bomber crews under his command had to make two bombing runs from high altitude following a lengthy night flight: one against a tactical target--an "enemy" air base, and the other against airplanes parked at the permanent practice range.

Although this was nothing new to Vasiliy Georgiyevich (he is credited with dozens of such flights), this time he was feeling special responsibility. The unit was undergoing a tactical flying exercise, which is a serious test of the combat skills of the crews. The higher staff would invariably keep a close watch on their performance of the assignment. They would watch, and they would strictly evaluate the actions taken in every phase of the flight. And very much was to depend upon him, the group leader. He had to mobilize all of his proficiency, all the more so because in the last party meeting, in a discussion of shortcomings in combat training, he appealed to his fellow servicemen to concentrate maximum effort on the jubilee competition in the final stage of the summer training period, to achieve scores no lower than "good" and "excellent" in every flight and to satisfy socialist pledges completely.

Leaving the hut, Major V. Popel' and the craft commander marched down the paved path to the airplanes ahead of the rest of the officers. The light breeze carried the heady odor of fresh-mown grass. The whole sky was covered with dark clouds.

The far end of the airfield lost itself in the darkening twilight. The squat aircraft, somewhat recalling birds with ruffled feathers, gave off a dull gloss from their skins. Technicians and mechanics bustled about them, finishing the final preparations for take-off.

Vasiliy Georgiyevich felt a sensation of something infinitely close and precious. During his years of service in the long-range bomber regiment the darkened expanse of the airstrip, the beautiful aircraft and the modest, diligent people who know the value of army friendship and with whom he performs missions of state importance had all become a part of his biography, taking over his life of intense combat training.

It was long ago, while still in school, that Vasiliy Georgiyevich gained the desire to tie his fate in with aviation. As a Belorussian adolescent, he was captivated by the power of high-speed jets, the white foamy wake of which he often saw in the sky. He began participating in an airplane modeling circle at the city Pioneer Palace, and he became interested in the literature on aviation. The memoirs of famous Soviet pilots became reference books to him.

Having received his secondary education certificate Vasiliy entered the Tambov Higher Military Aviation School for Pilots imeni M. M. Raskovoy. Four years of hard military training went by. But he also found time for social work: During his first and second years he headed the subunit's Komsomol organization. When he graduated from the school, he was sent here, to the air regiment, as an aircraft deputy commander. From his very first days of service in the new place he proved himself to be a serious, thoughtful and responsible person. Being a promising, hopeful pilot, he was soon sent to aircraft commander training school. A few months later Popel' returned to his own collective, but in a new quality. And he confidently managed the affairs of his crew.

Several rungs of the service ladder were now behind him. Soon it would be 2 years after Vasiliy Georgiyevich was promoted to his present post as squadron deputy commander. Many troubles were laid on his shoulders. But he fulfilled his responsibilities faultlessly. The squadron commander, Lieutenant Colonel Anatoliy Nikolayevich Podkolzin, was very pleased with his deputy. He always says things like this about him: "Efficient, energetic, resourceful. Deeply concerned for the common good. Ideologically mature. Possesses deep special knowledge. Loves and knows how to work with people."

The squadron in which Major V. Popel' serves occupies a leading place in the unit. Its overall score in piloting, bombing and other combat exercises is high; its discipline is firm. The ranks of outstanding soldiers and high-classed specialists filled noticeably this year, the year of the jubilee. There have not been any serious near accidents for a long time. Of course the squadron commander, the squadron political worker, the party organization and all of the personnel contributed a great deal of work to the collective's successes. But great credit also belongs to Major V. Popel' for this. He provides concrete, effective assistance to the commander in solving all problems associated with the people's training and indoctrination and with reinforcing order and organization. And so that his influence would be effective, he tries to personally set a good example in training and service for his subordinates.

Major V. Popel' is a 1st class specialist, but he prepares meticulously for every flying assignment on the ground, and he tries to fulfill it together with the crew faultlessly, despite the fact that the exercises can be far from simple, as was the case today.

Approaching the parking pad, Vasiliy Georgiyevich recognized Lieutenant of Technical Service Igor' Neyaskin, the aircraft senior technician, working among the air specialists next to the long-range bomber. He was examining the recess for the left landing gear strut one last time. Seeing the commander come the officer straightened up, walked toward him quickly and reported the aircraft's readiness for take-off.

Major Popel' asked:

"How do you feel?"

"Excellent!" The senior technician smiled, deducing the hidden meaning behind the question. Neyaskin is a good sportsman. He is the head of the wrestling section. And of course he always felt physically strong.

Complying with the established inspection procedure, the craft commander leisurely moved around the airplane. Lighting his way with a pocket flashlight he focused on the airplane's skin and the open hatches. His thoughts about Neyaskin, a young officer who was promoted to the high position of senior technician 2 years ago, immediately after graduating from aviation technical school, would not disappear from his mind. Igor' is diligent and industrious, and he knows his business well. Be it day or night--be it anytime of the day, in any weather, he comes to the airfield when needed, without excuses, to adjust the airplane's systems and machine units and to wash and clean them. Of course it cannot be said that he has all the experience he needs for the important work entrusted to him. But he listens to the advice of his elders, and he tries to organize well the work of the senior aircraft technician and his assistant, the electrical equipment technician and the aircraft armament technician.

Major Popel' recalled the time when he explained to the lieutenant that his diligence and hard work were not enough. He had to manage his subordinates boldly, monitor their work more strictly and guide it better. Igor' listened to the advice. He is becoming more experienced," he thought with satisfaction.

Accepting the aircraft, Vasiliy Georgiyevich climbed the portable ladder to the pilot's cockpit, looking into the other work stations on his way. The crewmembers were already preparing the apparatus. And although they were now located in different compartments, although they were separated from one another, a mutual attraction existed invisibly between them.

The craft commander had barely settled into the chair and turned on the intercom when one of the crewmembers, the second, and the third confidently and sharply reported their preparedness for the assignment. He noted to himself with pleasure that these people were cool and internally controlled, and they were concentrated on the most important thing--completing the mission.

Soon after, reports came in from the commanders of the follower crews--Major V. Nalichnikov and captains Ya. Kovalev and V. Nesterenko.

Deafening the surroundings with the thunder of its jets, long-range bomber of the lead group, which was completely filled with fuel, began its take-off run at maximum flying weight and soon disappeared into the low-hanging dark clouds. The rest of the airplanes climbed into the night sky after him in 2-minute intervals under radio silence and observing the pattern of leaving the airfield zone; they assumed their combat formation and headed off on their assigned route.

Major V. Popel' surrendered control over the aircraft to his assistant, while he himself carefully monitored the instrument readings and the flight conditions, and from time to time he communicated with his crewmembers on the intercom. He knew each of them well. Loving and knowing their work, and being serious and responsible, they always elicited good feelings and admiration in him. Vasiliy Georgiyevich was proud to be their commander.

To his right was Captain Aleksey Goloveshko, who controlled the craft with his strong hands on the wheel. He was a communist and an experienced pilot. In the air he always acts calmly and confidently. He is careful almost to a fault. He cou boldly relied upon in anything. But perhaps most of all this officer attract attention because of the obsession and unexplainable joy of flying which Aleksey experiences every time the crew rises into the sky. He had dreamed of becoming a pilot since his early years in school. As soon as the possibility arose, he joined the local DOSAAF aeroclub. And there he flew for the first time in his life. Then he was called into the army. Here he flew helicopters, he completed the entire aviation school course as an extramural student, and he became a professional military pilot. This was already his 8th year aboard this airplane. Imagine how many hundreds of hours he has spent in the air! He has accumulated considerable experience. Captain Goloveshko and Major Popel' could understand one another intuitively. They have a growing mutual deep respect.

"Attention, Commander," the anxious voice of the aircraft navigator, Captain Viktor Trubnikov, was heard through the earphones. "There's a strong tail wind along the route. We're approaching the turning point ahead of schedule."

"Roger. Calculate a symmetrical zig-zag pattern to take up the slack," Major Popel' ordered, and turning his head to his assistant, he spoke again, though more calmly this time: "After the turn, we'll do a zig-zag pattern. We have to be over the target precisely at the appointed time."

As soon as the turning point was passed, the aircraft commander reminded the navigator:

"Watch for side drift."

"Yes, Commander! Roger," he replied.

Trubnikov replied simply, in his usual business-like tone, but nonetheless there was a sound of special readiness in his voice. He had been with the crew since December of last year. Upon his transfer he was promoted to the post of squadron deputy navigator. He took his promotion as more than just a recognition of his services in flying. He felt additional responsibility for the work entrusted to him. And he tried hard. In a competition for an honorable welcome to the 60th anniversary of the USSR's formation, he took the pledge to maintain a piloting score of at least 4.6 and a bombing score of at least 4.56. True to his word, he prepares thoroughly for every flight, and in the air he is attentive and composed.

Meanwhile the aircraft, piercing through the black film of clouds, approached the tactical target--an "enemy" air base--in the darkness of the night. Hard work was proceeding aboard. The crewmembers actively exchanged information, they made their calculations precisely, and from time to time they clarified their data. When there was just a few dozen kilometers left to the target, the assistant navigator, Senior Lieutenant Aleksandr Druzhinin, who was monitoring the flight with radar, suddenly reported:

"Commander, I have a trace on the screen: Right on course--a thundercloud. Range--thirty."

The craft navigator, Captain Trubnikov, oriented himself in the situation and then gave orders:

"Turn right. Course...speed..."

Five minutes later on the new course the crew, which had bypassed the thundercloud, turned left and soon resumed its required course. The assistant navigator had warned the crew of the danger in time.

Druzhinin graduated from school relatively recently. He has already accumulated enviable experience. He is a navigator 2nd class. But he is not self-satisfied with his attained level of proficiency. He shows deep interest in studying the methods of bombing from different altitudes and under different conditions, and he meticulously hones his habits of navigation flight support. The officer combines hard military training with considerable social work: He was elected deputy secretary of the squadron's party bureau. An active, energetic and persistent person, he performs excellently in his job as secretary.

During the flight Major V. Popel' also monitored the work of the other crewmembers--a flight engineer Senior Lieutenant Vladimir Derkach, aerial gunner-radio operator Warrant Officer Sergey Yurkin and gun commander Warrant Officer Vladimir Kucherov. He maintained radio contact with them, and from time to time gave his orders.

Finally the aircraft navigator reported that they were now on the last leg of the route before the target. The tension increased noticeably: The long-awaited moment, in behalf of which the airmen had flown several hundred kilometers over the broad expanses of the country, had come. When the airplane began its bombing run both navigators used the radar sight to find the corner reflectors marking the offset aiming point of the target. Time was now being reckoned in the seconds. But every second was full and important; and every second passed so agonizingly slowly!

Major Popel' and Captain Goloveshko held the heavy aircraft in strictly horizontal flight. Meanwhile the navigator, Captain Trubnikov, laid the cross-hairs of the sight over the offset aiming point and held it there. Finally the automatic bomb release mechanism went into action, and the bomb hurtled toward the ground.

Following the leader, Captain Yuriy Kovalev's crew, which was following with a 30-second interval, struck the target. And 4 minutes later the second pair of long-range bombers controlled by Captain Viktor Nesterenko and Major Vyacheslav Nalichnikov made a devastating bomb run on the "enemy" air base.

Up next was another, no less complex exercise: an attack on some hardstands--a simulated "enemy" airplane parking area. It was not all that simple to hit this target from high altitude in the darkness of night. Nonetheless the crew was successful once again. Three excellent scores and one good--such was the result of their difficult assignment during the tactical flying exercise.

This was the 8th year that squadron deputy commander Military Pilot 1st Class Communist Major V. Popel' has been in charge of the crew of a long-range bomber. And his collective has held onto the outstanding title for almost all of these years. The commander conscientiously fulfills his duty before the motherland. His crew is greeting the 60th anniversary of the USSR's formation among the leaders of the competition.

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FIGHTER-BOMBERS PROVIDE GROUND SUPPORT IN EXERCISE

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 16-17

[Article by Col P. Lichagin, military pilot-sniper and Lt Col A. Lapshin: "And the Tanks Went Into the Attack"]

[Text] Lieutenant Colonel A. Bratashov's fighter-bomber squadron was preparing for a tactical flying exercise. According to the command's plan it was to support an offensive by a reinforced motorized rifle battalion. What this required first of all was suppressing fire weapons within the rear sector of the "enemy" forward edge of defense and deep within the defenses. Then the airmen were to provide close support to the battalion from the air until the battle came to an end.

On receiving the instructions from the regiment commander, the squadron commander first analyzed them himself, once again determining all of the details of the forthcoming actions. It was only after this that he brought the mission to the awareness of the subunit chief of staff, and then the personnel, so that they would have adequate preparation time.

The mission was to be carried out in northern latitudes over unfamiliar terrain. The squadron commander had flown in such conditions before. The topography was monotonous, without characteristic landmarks. There were occasional hills, barely covered with sparse vegetation, along the route. In the vicinity of the objectives of the strike the landscape was steep and mountainous. The crevasses and cliffs, which made the work of aviation more difficult, created more-advantageous conditions for the defenders. Lieutenant Colonel Bratashov considered not only this but also the fact that only narrow roads could be used to penetrate defenses in the proposed sector. "Consequently," he reasoned, "we need to carefully reconnoiter their disposition. Moreover the 'enemy' will doubtlessly try to use his reserves to stop the progress of the tanks and infantry fighting vehicles. From where could they be advanced and committed to combat?"

Many questions arose before the squadron commander. He realized that unless he considered all of the problems associated with the forthcoming battle, he would not be able to model it and play it out with his subordinates. Consequently it would be difficult to count on successful completion of the main missions at the target location--detecting, identifying and determining the vulnerable points of the targets and selecting the direction and method of attack insuring a fast and accurate strike from the air.

Earlier the squadron had participated successfully in exercise "Zapad-81." The commander remembered well how the air warriors prepared for each sortie during that exercise, thinking out the actions of the pairs, flights and groups deeply. Despite the rigid time limitations the pilots found the time to rehearse the flight on charts, relief maps and terrain models, and they worked out their actions by simulation. The leaders elaborated upon questions of coordination right out in the field, together with the commanders of the ground subunits. It was with a consideration for all of this that the commander now organized the personnel to prepare for the forthcoming missions in the tactical flying exercise.

Of course it is difficult to foresee absolutely everything on the ground. But it is always easier to adjust a developed plan than to start everything from scratch, especially when the situation changes abruptly. Sometimes many of the things that had been calculated, thought out and rehearsed are not employed due to a number of circumstances. But the experience of exercises shows that those subunits which make good preparations beforehand and carefully simulate the most difficult contingencies of combat orient themselves much better, find competent solutions and implement them more efficiently.

The squadron deputy commander Major V. Kuznetsov and flight commanders captains V. Mogutnov and V. Shirobokov developed different contingencies for striking the ground targets. Lieutenant Colonel A. Bratashov attentively studied the proposals of his subordinates. Supported by more-substantial and accurate calculations, these proposals were practically embodied in the commander's plan.

Meticulous preparations for exercises promote development of tactical thinking of the personnel, who learn to use effective combat tactics irreproachably. It is very important to teach the air warriors to quickly switch from one contingency to another in accordance with the changing situation. To be successful, moreover, the fighter-bomber crew must confidently orient itself in the complex dynamics of modern combined-arms combat.

Understanding the importance of diversified training, Lieutenant Colonel Bratashov attaches great significance to it. In every lesson he demands improvement in the knowledge of the tactics of aviation and ground troop subunits. This produces its results. His subordinates have a clear idea of the possibilities of fire weapons, of the combat formations of the ground troops, of the procedures used to camouflage and conceal equipment and weapons, of the identifying features of such equipment and weapons, and of the time necessary to redeploy tank, artillery, rocket and other subunits of the armies of the probable enemy. They are also aware of the organizational principles and actions of enemy antiaircraft resources. The squadron's airmen try to learn about all of the possibilities of the subunits they support. Many times in complex conditions, day and night, they were able to complete their missions in excellent fashion and make prompt, accurate strikes from the air.

Preparing for the forthcoming exercise, the pilots thoroughly studied the flight route, which went over marshy forested terrain. The commander turned special attention to navigational training of the crews, to the accuracy with which they plotted and calculated the route and to their knowledge of the alternate airfields. He also recalled that the reference points and objectives of the strikes were difficult to detect and distinguish in this terrain owing to the particular features of the plant cover.

Then came the day for the squadron to take off and assume its prescribed course. The flight proceeded normally. At the appointed time the warplanes made their landing. Bratashov organized the preparations for the forthcoming combat training actions. Simultaneously he discussed the problems associated with party-political support to the tactical flying exercise. Major S. Makhonin, the squadron deputy commander for political affairs, got the active party members together and recalled to them that success would be promoted to a significant extent by the fighting mood of the people and by their moral and psychological preparedness to complete their mission in excellent fashion. Considering the advice and wishes of the squadron political worker, the active party members did their work completely and effectively: They informed the soldiers about the tactical situation, and they promptly published battle leaflets and flash bulletins. Propagandists and agitators held talks on faithfulness to military duty and on mutual assistance in training combat. Capitalizing on the initiative of the communists, the commander organized a competition between the crews and flights for best preparations for the forthcoming flights. The subunit's engineers and technicians competed in preparing the aircraft for take-off in reduced time with excellent quality. Major Makhonin's primary assistant in this instance was the secretary of the squadron party organization, Captain Ye. Pupchenko.

In the classrooms, using air reconnaissance data plotted on large-scale maps, the pilots once again thoroughly studied the region of forthcoming actions, and they simulated the different ways to surmount the air defenses and reach the target, and they practiced maneuvers making it possible to get the greatest accuracy of bombing or missile launches, recovering from the attack and returning to the airfield.

The groups led by military pilots 1st class Major V. Kuznetsov and Captain V. Mogutnov prepared for the exercises persistently together with everyone else. This was not the first time these airmen were participating in a tactical flying exercise. But not everything about the forthcoming mission was familiar to them. The extremely rough terrain significantly reduced the effectiveness with which many of the tactics could be used. Moreover, flight at low altitude required special attention to safety: The significance of target search and circumspection was greater. Therefore, the variants of making strikes against terrestrial objectives determined previously at their home airfield and tested at the practice range had to be reconsidered in application to the real conditions.

The flight controllers headed by a top-class military pilot, Officer B. Yegorov, provided considerable assistance to the airmen in their preparations for their sorties. They coordinated the retargeting commands and the indentification signals of their subunits with the air warriors. The coordination plan was studied attentively once again. Problems associated with organizing coordinated work in different phases of combat were reflected in this plan. The comradely cooperation between the air warriors and the control officers was highly beneficial.

During the preflight instructions the commander turned special attention to the accuracy with which the target region is approached, emphasizing that the time factor plays the decisive role in the outcome of combat activities. The time factor is precisely what gives a particular side the initiative, and immediately takes it away, if precious moments are lost. The commander also recalled that the situation on the ground and in the air will constantly change. Therefore, the

pilots had to maximally foresee all possibilities for constant air reconnaissance and final reconnaissance, so that movements by concealed "enemy" reserves could be detected in time, and so that new objectives capable of influencing the course and outcome of combat could be revealed.

In accordance with the terms of the exercise the attacking side began combat activities with powerful artillery preparation. Rocket launchers, guns and mortars went into action. Aviation joined the fight strictly according to plan. The battalion went over to the attack in response to a signal flare. The wheels of the infantry fighting vehicles and the caterpillar tracks of the tanks sprayed snow into the air. The offensive began.

A reconnaissance report came into the command post: Northwest of the mountains, "enemy" missile reserves were moving southeast. The senior chief decided to call in aviation to destroy these reserves. The air force liaison officer Lieutenant Colonel B. Yegorov quickly determined the men and equipment required and transmitted the signal for the air group to take off.

The flights led by top-class military pilots Major V. Kuznetsov and Captain V. Mogutnov took off on command. The airplanes rushed toward the target at low altitude. Their fast speed made orientation difficult. But the pilots had studied the ground situation meticulously, not without benefit. They held to their route accurately in time and place.

The group had barely entered within hearing range of the forward control post when the controller reported that their reserves were covered by a flight of "enemy" fighters, and that our fighters had been called in against them.

In one of the contingencies of making the strike the plan was for a decoy group to peel off in response to a signal from the commander. The flights separated. One continued on its previous course, and the other made a right turn behind a hill. Captain V. Mogutnov charted his course in such a way as to circumvent the heights and to strike from behind them. He figured that this would be enough time for Kuznetsov to expose himself to detection by the "enemy," to attract the attention of his fighters and to set them up for attack by the other airplanes.

A right turn followed. The flight commander discovered tracks on the snow indicating movement of rocket launchers. They were all too obvious. "Was the 'enemy' deliberately revealing himself?" thought Mogutnov. "Moreover the tracks lead away from the prescribed grid square."

The search continued. Time passed swiftly. On the next turn Mogutnov noticed a column of prime movers and tractors but there were no rocket launchers. They made another turn in the direction indicated by the local controller. There it is, the target! They discovered it visually. The command to attack in pairs followed. There were no fighters around. That meant that the plan could be implemented.

The reserves were just finishing their deployment when the pilots of the flight opened rocket and artillery fire on them. Kuznetsov's flight appeared soon after to help finish the attack on the ground targets. As was revealed later on, it had not taken him long at all to decoy the "enemy" in for the kill, after which he returned to his main mission. Ground confirmation of the results of the attack and, later on, analysis of the flight recorder data indicated that the "enemy" subunit had been annihilated at the right time.

Meanwhile Lieutenant Colonel Bratashov's group was covering the advance of the tanks. Here the "enemy" droppped a party of grenade throwers and some antitank guided missile crews. Operating boldly and competently they rushed in to cover the road in a narrow crevass between towering cliffs. They could be knocked out of their shelter only by single bombers using sighting fire. The commander decided to make the first strike. He had a good idea of the terrain in this area. Bratashov selected a vertical maneuver for the bombing run.

The fighter-bombers raced forward at minimum altitude. They reached the point of initiation of their bombing run at the appointed time. There was a mountain in front of them. Bratashov's nerves were stressed to the limit, and his brain controlled his actions effectively. Obedient to the pilot's will, the airplane rushed toward the target. This was it! He pulled the stick toward himself. The missile carrier bounced upward energetically. The bomb release button was down. Separating from the airplane, the bomb followed its intended trajectory right into the crevass.

There was a burst of flames, and rock and debris fanned out into the air. But the airplane was far away by then. Making a half-roll at the upper point of its manuever, it quickly descended out of the zone of fire of "enemy" antiaircraft resources. The umpires determined that the target was hit dead center and that the antiaircraft manuever was effective. On the spot they transmitted the signal that the route of advance was open.

The squadron's pilots flew many sorties during the exercise. And each one was successful. This was the result of outstanding flying skills, harmoniousness of the pairs, the flights and the entire subunit and the high moral and political mood of the air warriors, trained to estimate the situation instantaneously, to make decisions quickly and to act immediately.

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RADIO ENGINEERING ADVANCES IN SPACE FLIGHT DESCRIBED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 22-23

[Article by Academician V. Kotel'nikov, vice president of the USSR Academy of Sciences, chairman, "Interkosmos" Council: "The Orbits of Peace and Progress"]

[Text] Twenty-five years have passed since the launching of the first artificial earth satellite, since the beginning of practical development of outer space. The road we have traveled during this time was huge.

On 12 April 1961 the world was notified of an outstanding event in the history of mankind. The first man on our planet--Soviet citizen Yuriy Alekseyevich Gagarin having surmounted earth's gravity, flew around the globe in a spacecraft.

The 21 years since this event were filled with intense and productive labor. Human space flight transformed from an exceptional event to something that is almost commonplace. The sphere of scientific research conducted with the help of spacecraft has widened. Space technology is serving the national economy on an ever-increasing scale.

The 26th CPSU Congress posed new tasks before us, including in development of space.

Let me dwell on the events which occurred recently in space research.

For 676 days five principal expeditions and 11 visiting crews labored aboard a space station. For the first time in the history of cosmonautics nine cosmonaut researchers from socialist countries participating in the "Interkosmos" program--Czechoslovakia, Poland, GDR, Bulgaria, Hungary, Vietnam, Cuba, Mongolia, Romania--worked in outer space.

This cycle of research pursued the following basic objectives: studying the earth and its atmosphere and other space objects from outer space, investigating a number of physical and biological processes in weightlessness, studying the functions of the human body during space flight and after it, and improving space equipment.

Flights aboard the station "Salyut-6," in which 27 cosmonauts took part (six of them were in orbit twice, and two--L. Popov and V. Ryumin--participated in the longest flight), provided a very great deal of valuable information for medicine and for raising the effectiveness of man's work in space.

People sometimes ask: Why do we need to send man into space? That is a good question, because much of the research carried out in space could in fact be done by automatic systems. In a number of cases this would be both cheaper and safer. But man's presence, especially in the first stages of working out the procedures, makes it possible to complete the mission much faster and more completely. This is why we still continue to believe that we need both manned flights and automatic systems.

Of all the experiments conducted aboard "Salyut-6," I would like to discuss primarily the radio engineering experiments.

As we know, submillimeter waves (with length less than 1 millimeter) do not pass through the atmosphere, but it is very important for us to know what happens in this range. This is why the BST-1M telescope was used aboard "Salyut-6." One of the interesting results was discovery of abnormally intense emissions in the submillimeter wave band in areas of thundercloud formation. Moreover the experimental techniques were worked out. The problem was that the BST-1M radio wave receivers are cooled by liquid helium, which is in a perpetual state of boiling. In weightless conditions it was important to surmount the difficulties associated with this process.

Another radio telescope--the KRT-10--operated at wavelengths in the tens of centimeters. Such waves pass through the atmosphere easily, and they make it possible to organize observation, from outer space, of radio waves emitted by the earth--in all weather, moreover, both day and night. We have learned to use radio waves to determine the temperature of ocean water with an accuracy of about 2°, the wave state of the oceans, the soil moisture content with an accuracy of up to 10 percent, and the concentration of water in the atmosphere in the form of vapor and separately in the form of droplets in clouds. These data will have great significance to weather forecasting and to understanding the processes that cause weather.

The main purpose of space radio telescopes is to observe small and very distant objects in space. On earth, by locating radio telescopes on different continents we have been able to obtain an angular resolution of 100 million radians, which is 3 orders or magnitude (a 1,000 times) better than that of optical telescopes. Such resolution means that we can see objects a few meters in size as far away as the moon is. Astronomers want to examine even smaller objects, which is why the KRT-10 was sent further away, beyond earth to the orbiting station.

Considerable importance was attached aboard "Salyut-6" to visually observing land and water and photographing the latter with special cameras providing color images. The cosmonauts determined what was best to photograph, and how to do it best. Tens of thousands of photographs were taken.

The cosmonauts discovered a number of previously unknown fractures of the earth's crust, accumulations of cracks in some places, and promising areas of exploration for petroleum and other minerals. The obtained information has already been used to draw a new tectonic map of the USSR. Observation of volcanoes on the Kuril Islands from outer space revealed that some of them that had been believed to be extinct may become active again.

There was an extensive program of what we refer to as space technology. Cosmonauts conducted one part of the experiments to clarify the essence of physical phenomena, and another part to develop new procedures of obtaining valuable materials necessary for the manufacture of, for example, miniature components for electronic instruments.

Finally, the "Salyut-6" program required the testing and checking of transport craft and the station itself, and determination of the possibilities for its repair during flight. The obtained results were accounted for in the design of "Salyut-6," which followed its predecessor into the sky.

The flight of a Franco-Soviet crew aboard a Soviet manned spacecraft and an orbiting station was a remarkable event of this year. Experiments were conducted with new scientific instruments manufactured in the USSR and France.

The flight of "Venera-13" and "Venera-14" to Venus and the decent of automatic craft to the surface of the planet from these stations at the beginning of March of this year were great successes of our science and our space and instrument making technology.

Why are we interested in this planet? By studying Venus, we hope to unravel some of the secrets of Earth. Scientists are interested in both the past (it should help us understand the present better) and the future of our planet. Before, we could do this only by studying earth processes. Now a possibility has arisen for studying the way things are on another planet existing in similar conditions.

What did the latest Soviet expeditions to Venus give us? First of all additional research was conducted on the atmosphere. The first measurements ever made of the ultraviolet portion of the flux of solar radiation showed that a significant proportion of this radiation is absorbed at altitudes above 60 km, thus heating the atmosphere. It may be possible that this can explain the usually rapid rotation of the cloud cover that exists primarily at such altitudes.

The concentration of all inert gases in the atmosphere and many of their isotopes was also measured for the first time. This is very important information for planetology.

Various methods were used to measure the concentration of water vapor in the atmosphere. For incomprehensible reasons it was found to be very low. It was demonstrated by direct methods that sulfur is the principal element in the composition of the cloud layer. It was found that the sky of Venus is orange, which is why the planet has an orange hue. The explanation for this is that the planet's atmosphere absorbs blue light or, more accurately, the blue portion of the spectrum.

Information on the planet's surface is the most interesting. Black-and-white photographs of the vicinity of the landing site were obtained with higher-than-ever resolution, and the first color photographs were obtained as well. Rock sampled with a drill was transported by way of an airlock into the vacuum chamber of the analyzer of a roentgenofluorescent spectrometer. The obtained spectrums (about 60 of them were taken) were transmitted to earth by radio.

Analysis of the spectrums produced data on the concentration of potassium, magnesium, silicon, aluminum, calcium, titanium, manganese and iron in the soil. The spectrums are being subjected to further analysis to reveal elements contained in smaller concentrations.

Rock in the vicinity of the landing site of "Venera-13's" landing module is classified as leucitic basalt that has experienced chemical erosion. This is consistent with the appearance and texture of rock observed on panoramic photographs.

A knowledge of the chemical composition of rock will make it possible to calculate its primary mineral composition, and the composition of secondary minerals that arose in response to the action of the caustic atmosphere of Venus, and to determine the conditions under which the initial melt formed, the depth to which it extends and the degree of melting of the mantle of Venus. In other words we will be able to reproduce the physicochemical conditions of its formation.

The composition of rock sampled in the vicinity of the landing site of "Venera-14's" landing module turned out to be different. It corresponds to the composition of oceanic toleitovoy [translation unknown] basalt, which is so widespread on earth. But we cannot interpret this rock as the result of lava flows, as is the case with "Venera-13." More likely it is the product of accumulation of a mixture of ash and small crystalline fragments of rock and minerals that were ejected during violent volcanic eruptions and subsequently compacted together. Absence of noticeable secondary alterations of the rock indicates that it is young, and the fact that violent volcanic eruptions had occurred is an indication that noticeable quantities of water are present in the planet's magma. This places doubt on the hypothesis that Venus was initially water-poor. The results of the experiments are exceptionally important to planetology in general and to the study of Venus especially.

"Venera-13" and "Venera-14" are carrying Soviet and French gamma-ray receivers that are able to record suddenly arising bursts or, as they are called, flashes of gamma radiation. By determining the difference in the moments at which the gamma-flashes are recorded, we can calculate the direction from which they came. The precise reason of their arisal is unknown. They usually last several seconds, and they probably appear at times of major cosmic catastrophes. About 30 flashes were recorded during the time of flight of "Venera-13" and "Venera-14." They cannot be recorded by terrestrial receivers because they do not pass through the atmosphere. Research on the gamma-flashes should shed light on the nature of yet another form of grandiose processes occurring in space.

Last year Soviet scientists completed development of a more refined theory of the movement of the inner planets (Mercury, Earth, Venus, Mars). It now permits us to calculate the distance between planets with an accuracy of 1 km and their velocity with an accuracy of about 1 cm/sec. These calculations are tens of thousands more precise than those obtained 20 years ago, prior to the advent of radar astronomy and the flights of spacecraft to the planets. The theory is based on the general theory of relativity, which accounts for change in the temporal and spatial relationships in gravitational fields, and it utilizes both the latest optical and radar measurements of the positions of the planets. Radar measurements are now astoundingly accurate: We are using the space radar stations located in the Crimea to measure the distance to Venus with an error on the order of just 300 meters.

A large radio telescope as tall as a 25-story building with a reflector 70 meters in diameter that can be aimed in any direction will doubtlessly have great significance to space research. Today this is the best radio telescope of its class in the world, and it can transmit radio waves, concentrating them into a very narrow beam, and receive them. It is used for communication with spacecraft, particularly for transmission of commands to "Venera-13" and "Venera-14" stations, to receive information on them, for radar determination of planet location and for radio-astronomical observations.

In addition to the scientific research that was conducted in outer space, national economic space systems intended for regular observation of the earth in behalf of weather prediction, agriculture, forestry, seamen and geologists continued to develop and improve, as did navigation, communication and television broadcasting systems.

Owing to satellite communication, as of October 1980 the USSR was able to offer Central Television-1 in five time zones and Central Television-2 in three times zones. Today, Central Television programs are transmitted from Moscow at a time convenient to residents of a given zone. In all, more than 87 percent of the Soviet Union's population enjoys good quality television reception.

Use of artificial earth satellites with more-powerful radio transmitters made it possible to simplify and cheapen receivers at small population centers and aboard ships of the maritime fleet operating in the northeastern sector of the Arctic. The satellite network of the "Ekran" television broadcasting system, which uses such satellites, is truly massive. It now contains about 2,000 receiving units.

The possibilities for providing television reception to the entire country appeared with creation of a satellite system broadcasting television signals in the four gigahertz range, now called the "Moskva" system. It can service any regions of the country, including the European USSR, the Urals, Central Asia and the Far East, since there is no danger of causing interference to terrestrial services. Use of a higher-power transmitter and an antenna with a narrow polar diagram aboard the "Gorizont" satellite, which flies a stationary orbit relative to the earth, has made it possible to significantly simplify and cheapen the receiving station in comparison with the "Orbita" station, and to replace antennas with a reflector diameter of 12 meters by simple and inexpensive 2.5 meter diameter antennas. A network of 100 such stations is now operating successfully, and the possibility of their reception of images of newspaper pages was tested out. With the help of this system, newspapers can be transmitted directly to printers, thus excluding the need for building expensive terrestrial connecting lines and making it possible to significantly increase the number of cities in which central newspapers are published simultaneously with their release in Moscow.

The "Intersputnik" international satellite communication organization is successfully developing on the basis of "Gorizont" satellites. Today its members include Afghanistan, Bulgaria, Hungary, Vietnam, the GDR, Cuba, Mongolia, Poland, Romania, Czechoslovakia, the USSR, Yemen, Laos and Syria.

About 40 percent of all television exchanges between these countries are made by means of the network of terrestrial "Intersputnik" stations, and as of 1 February 1982 daily television news exchange was organized.

The space of this article does not permit me to list all of the events that had recently occurred, but the successes that have been achieved and their significance are evident from this discussion. We can say with full certainty that we will greet the 60th anniversary of the USSR's formation with new, greater achievements in exploration and exploitation of space for peaceful purposes, in behalf of the national economy.

11004
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FATHER, SON WORK AS TEAM IN INTERCEPTOR SQUADRON

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 26-27

[Article by Lt Col N. Stupnev: "The Sky is Part of Them"]

[Text] Military Pilot 1st Class Lieutenant Colonel I. Nazarov glanced at his watch and walked faster. Vladimir quickened his pace as well. He did not want to fall behind his father, talking with whom always raised his self-confidence. Especially now, just before the flying. They walked side by side. The time-wizened squadron commander and the young officer. Both were communists. The older of the two was to climb into the sky today, so as to intercept an "enemy" airplane out there, at high altitude, while the younger was to guide him to the target from the ground.

They walked side by side and talked, these two most closely related persons. They talked about one thing--the forthcoming work. They meticulously studied the forthcoming assignment together, and they clarified every detail of the flight. Parting with Vladimir at the command post, the father wished him well:

"May your interception control be excellent."

His parting gaze at his son was warm. Sometimes when he watched him, Il'ya Vasil'yevich noticed the concealed pain with which Vladimir looked at the warplanes as they swiftly disappeared into the blue. He knew that to fly, to be next to his father in the broad expanses above the clouds, was his most precious dream. But life is life, and sometimes it requires significant adjustments in personal plans. That happened with Nazarov the younger. The flight school commission would not pass him, and he was unable to satisfy the unbending medical norms. Nonetheless he did find the strength to stick with his dream of serving in aviation, and he became a combat control officer. From the ground, he helps his father and his comrades to strike targets with the first approach.

One-hundred interceptions--such was Senior Lieutenant Nazarov's score on the eve of the 65th anniversary of Great October. Each was completed with mathmatical precision, knowledgeably. Could this be luck? No. No one knows better than Il'ya Vasil'yevich that every attack is the product of his son's hard daily work and severe exactingness toward himself. Moreover it could not be otherwise. Vladimir is a communist and a champion of the Leninist party because he wants to constantly move forward, to learn military affairs as they should be learned and to lead others. After all, Senior Lieutenant Nazarov is a party activist, he must serve as an example, and he must always be at the spearhead of the attack.

Vladimir's diligence is providing a full return. He achieved many things in the years after graduating from school: He became a top-class specialist, and the commander has rewarded him many times for his competent actions. Take as an example one of the instances of his combat duty. Vladimir was guiding one of several pairs of fighters to a fast-flying target. After the attack, radio communication with one of the pilots was interrupted. The senior lieutenant did not panic. With time extremely short, he made the sole correct decision: He began transmitting the data to the follower of the pair, who in turn helped the leader to complete the difficult flight without incident. And so it is that step by step, Communist Nazarov the younger's stride becomes increasingly more confident, and his confidence in his strengths grows.

Vladimir looked over his workplace, so familiar to him now, opened a notebook containing excerpts from the flight planning table and checked the time. Then he began to carefully study the route plotted on the map. He knew it by heart, but he felt it necessary to once again test his knowledge. This is what his father always teaches him to do.

The father. Vladimir constantly senses his support. A man with an open heart who loves his profession, he virtually attracts everyone with whom he communicates. And as far back as Vladimir can remember, his father has never lost his endurance and coolness, even when unfavorable situations arose in the air or something was not going right for his son or his comrades.

I recall a day when the airfield was socked in by dense impenetrable clouds. Nazarov the elder was still up in the sky. The fuel tanks of his fighter were almost empty. Vladimir, who was off duty at this time, anxiously paced back and forth across the small apron in front of the command post. How he longed to be out there now, in the sky! Or beside the radar screen, so that he could lead his father to his landing course. But another officer was now at Vladimir's usual place, and there was nothing to do but wait patiently.

Vladimir sighed with relief when he saw the airplane as it dove out of the clouds. Then, restraining his agitation, he walked quickly toward his father.

"Any problems?" he asked, inspecting the familiar details of his father's face.

"No, everything's normal, it happens all the time," Il'ya Vasil'yevich smiled.

Yeh, to him such a situation was commonplace. A top-class combat pilot, he had never shirked the difficulties of the sky throughout his entire career in aviation, because he had completely assimilated the complex modern equipment which the Communist Party and the Soviet people entrusted to him and his comrades, he had gained a perfect knowledge of his own and the enemy's aerial tactics, and he had tempered himself psychologically. Moreover he shares his experience generously with young pilots.

He often talks about them to his son in times of relaxation. Il'ya Vasil'yevich begins to glow whenever the discussion turns to the successes of his students. He mentions the confidence and boldness with which they fly, and how they try to

surpass even him, an experienced aerial master, in competitions. And whatever they attack in the sky, they hit their targets without fail, with the first volley. They are real experts of this business, worthy successors of their fathers and older brothers--those who had invariably struck down fascists from the sky in the years of the Great Patriotic War, so menacing to our motherland.

One can imagine how many students learned their trade in those good 2 dozen years in which Lieutenant Colonel Nazarov has served in the unit. Many are already graduating from military academies--for example, officers A. Taran and A. Koblov. Major Yu. Feofanov and Senior Lieutenant V. Larin earned state awards for their high proficiency displayed in the course of combat training.

Il'ya Vasil'yevich does not like to talk about his own successes. Even to his son. But Vladimir knows that he really earned the Order of the Red Star that sparkles on his father's parade uniform. This is a high award--a tribute to the experience and proficiency of Lieutenant Colonel Nazarov, a patriot and a communist with a warm heart.

The thunder of the jet turbines rolled across the airfield wave upon wave. Il'ya Vasil'yevich Nazarov's airplane took off for the sky. His son remained on the ground. And although they were both totally engrossed in what they were doing, both were concerned about the same thing--how to get within target range and how to strike the target accurately.

There on the plotting board, which was densely covered with criss-crossing multicolored marks, an arc could be clearly made out--the flight trajectory of the fighter piloted by Nazarov the elder. And when the tip of this arc crossed the course of the "enemy," everyone at the command post came to life. The attack was finished. The target was struck.

"There's Nazarov's signature!" someone uttered approvingly behind Vladimir's back.

On that day many of the regiment's pilots displayed high proficiency. They intercepted their targets at various altitudes, competently deducing all of the "enemy's" ruses. And the ground did not let them down either: The commands were transmitted quickly and sharply. The personnel received a high score for all of the missions. It is in this way that the airmen are honoring the 65th anniversary of Great October.

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STALL PREVENTION SYSTEMS DISCUSSED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 32-34

[Article by Engr-Col V. Zhulev, candidate of technical sciences; Engr-Col (Res) G. Fedorenko, doctor of technical sciences; and Engr-Maj N. Kurnyavtsev, candidate of technical sciences: "Near the Stall Limit"]

[Text] Stalling is defined as involuntary aperiodic or oscillatory movement of an airplane relative to any of its three axes arising as a result of flow separation from the wing at near-critical angles of attack. As a rule stalling is accompanied by worsening or complete loss of controllability. If the pilot does not reduce his angle of attack promptly the airplane goes into a spin, creating a considerable threat to flight safety.

According to foreign statistics, just in the period from 1966 to 1976 about 20 percent of all aircraft accidents occurred because of the stalling of nonmaneuverable airplanes and spinning of maneuverable airplanes. In 7 years (from 1965 to 1972) this was the cause of 169 aircraft accidents (with 96 of them being disastrous) in American naval deck-landing aviation.

Theoretically, growth in the angle of attack of any airplane will terminate with flow separation, which results in stalling. For practical purposes, however, some airplanes achieved stalling conditions relatively more frequently than others. The propensity of an aircraft for stalling depends on its particular aerodynamic configuration, which determines the angle of attack at which separation may occur; it depends on the stability and controllability characteristics of the aircraft at high angles of attack; it depends on the properties and parameters of the control system, and particularly the force that must be applied to the control stick to change acceleration by one unit and the distance over which the force must be applied, and other factors.

Readily distinguishable phenomena that warn the pilot of the approach of dangerous conditions arise aboard some airplanes flying at angles of attack close to maximum permissible. Other airplanes are equipped with a warning system that is activated only when the airplane experiences conditions just before a stall.

The natural signs preceeding stalling include: shaking of the airplane, of individual structural components or of control levers due to flow separation; rocking (oscillation) or bumping of the airplane in relation to bank, yaw and pitch, elicited by change in the moment characteristics at large angles of attack. Figure 1 shows the angles of attack corresponding to the beginning of shaking α_{sh}, stalling α_{stall} and permissible angles of attack α_{perm}.

Aboard many modern supersonic maneuverable airplanes, aerodynamic shaking arises at low instrument flying speeds (segment 1-2) almost immediately prior to stalling, or it does not occur at all. At high flying speeds aerodynamic shaking may arise long before the start of stalling (segment 2-3), and as the angle of attack is increased, for practical purposes the intensity of shaking does not increase. Therefore the pilot cannot use it as a natural signal warning of the approach of the maximum attack angle, inasmuch as at low Mach numbers stalling occurs immediately after shaking arises or even in the total absence of the latter, while at high Mach numbers flying in the shaking zone is generally permissible, and shaking loses its property as a distinguishing sign. In this connection warning signal systems are used aboard modern airplanes: Shaking or jarring of the control levers themselves (control sticks, pedals), acoustic signals (siren, bell, voice) and light signals (blinking or flashing lamps, signs on a light signal panel).

These are called passive warning systems. Their principal merit is that they do not limit the pilot's initiative in aircraft control, while their principal shortcoming is their low effectiveness associated with the fact that when the pilot's attention is considerably taxed, for example during aerial combat, he may not notice the signals and place his airplane into a stall. Thus passive warning systems cannot insure full utilization of the airplane's capabilities for maneuver without the danger of stalling.

Active systems, or special automatic systems that keep the airplane from flying at impermissible angles of attack and prevent stalling and spins have come into use in recent years. This is achieved by limiting the angles of stabilizer deflection and consequently limiting the angles of attack at which the airplane flies. This can be done by appropriately limiting the distance the control stick can be moved, by changing the transmission ratio between the control stick and the stabilizer and by other means. Moreover the effectiveness of the tail assembly may be reduced by, for example, artificially causing flow separation on it by deflecting special planes on it.

The principle of operation of an angle of attack limiter (AAL) that limits the distance the control stick can be moved or the angles to which the stabilizer can be deflected is as follows (Figure 2). Information from an angle of attack sensor (AAS) is fed to a computer (C), which goes into action when a particular angle of attack is attained, producing a signal that is transmitted to an actuating unit (AU). The latter acts either directly upon the gate valve of the booster (B) and deflects the stabilizer to initiate a dive, or in some cases on the control stick (CS), deflecting it away from the pilot. In this case it also acts upon the stabilizer in the same direction by way of the control circuit and booster, causing the airplane to dive. Additional information is fed into the computer (for example the Mach number, the wing sweepback angle (SA), the intensity of growth in angle of attack) necessary for calculation of the permissible angle of attack at which the automatic system would go into action.

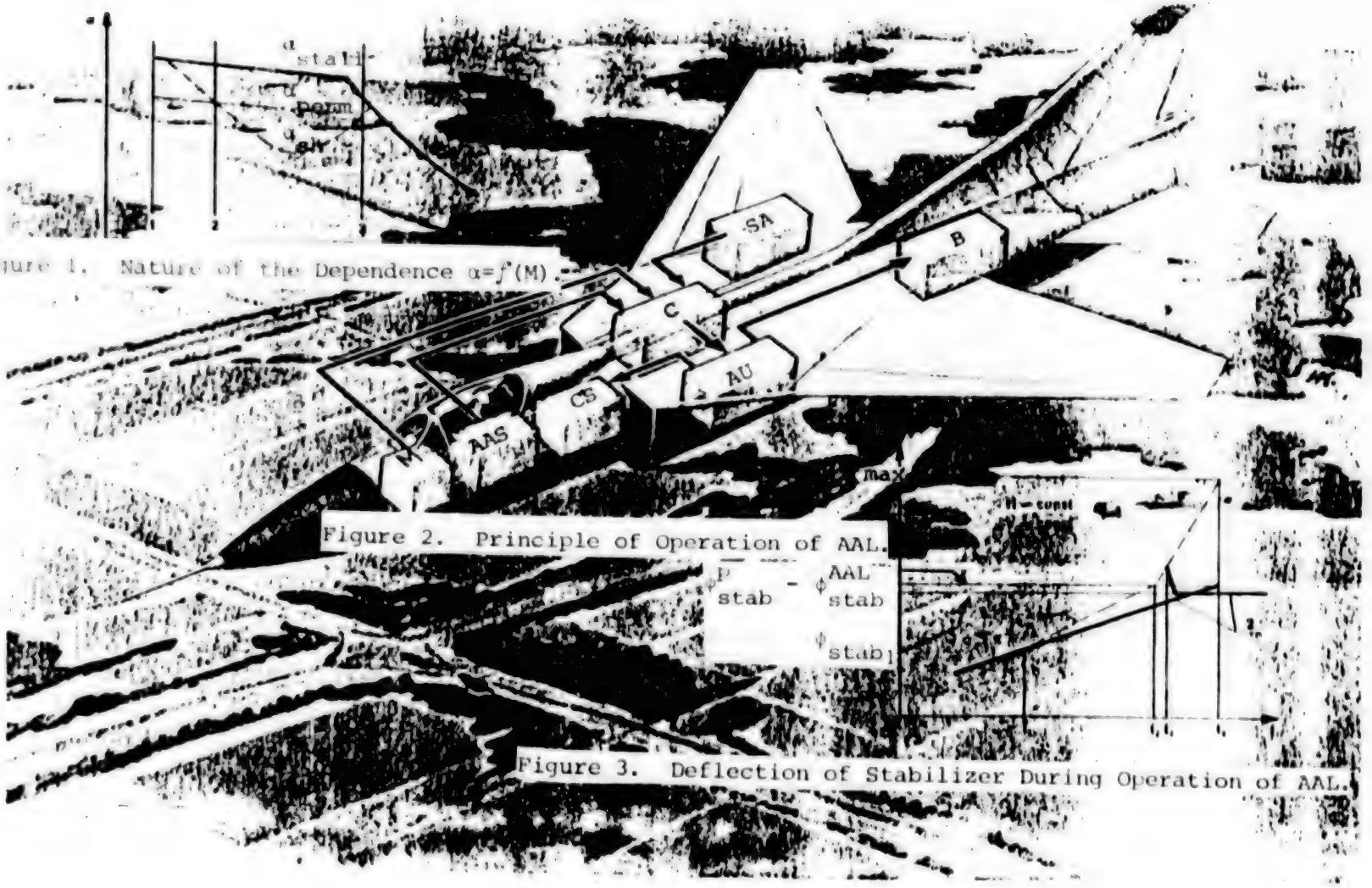

Figure 1. Nature of the Dependence $\alpha = f(M)$.

Figure 2. Principle of Operation of AAL.

$$\phi_{stab} - \phi_{stab}^{AAL}$$

Figure 3. Deflection of Stabilizer During Operation of AAL.

The angle of attack may be limited by nonlinear feedback of the signal to the stabilizer. When an aircraft flies at angles less than α_1 (prior to time t_1), the AAL does not deflect the stabilizer (movement of the stabilizer by the pilot is represented in Figure 3 by the broken line). At angles of attack greater than α_1 (prior to time t_2), with every degree of change of the angle of attack the system forms a signal causing deflection of the stabilizer in the direction of a dive with proportionality factor k_1 (the lines labeled 2 show the total deflection of the stabilizer by the pilot and the AAL). In the range of angles α_2 to α_3 (from t_2 to t_3) the feedback quotient increases--that is, $k_2 > k_1$. The system is adjusted in such a way that when the control stick is maximally deflected toward the pilot in relation to pitch, the airplane flies at the maximum permissible angle of attack--that is, $\varphi_{stab} = \varphi^{P}_{stab} - \varphi^{AAL}_{stab}$ corresponds to balanced deflection of the stabilizer for flight at this angle. In this case full deflection of the control stick corresponds to variable maximum deflection of the stabilizer guaranteeing that the airplane would not stall.

Inasmuch as attainment of a stable angle of attack is usually accompanied by an overshoot, a supplementary signal proportional to the angular rate of pitch ω_z or the rate of change of the angle of attack $\dot{\alpha}$ is fed to the AAL system. This signal reduces the current deflection of the stabilizer during the transition, which insures attainment of maximum permissible angles of attack without overshoot.

Stalling may be prevented by forced energetic deflection of the stabilizer into a dive configuration when the airplane attains angle α_a--the angle of attack at which the AAL is activated. When the angle increases above α_a the AAL deflects the stabilizer a certain magnitude φ_{stab_1} into a dive configuration (Figure 3). The control stick is pushed away from the pilot, and the stabilizer is deflected for a dive through the wiring by a small hydraulic cylinder that creates a constant force on the stick counteracting the pilot, ΔP_{AAL}, equal to 15-20 kg. Pilots report that such forces are sensed sufficiently well.

If the pilot does not counteract the hydraulic cylinder--that is, if he does not apply forces to the control stick greater than $P_{bal} + \Delta P_{AAL}$, the control stick deflects away from the pilot, the stabilizer assumes a dive configuration, and the angle of attack decreases to $\alpha_{perm} - \Delta\alpha$. As soon as the current angle of attack measured by the AAS becomes equal to $\alpha_{perm} - \Delta\alpha$, the additional forces applied to the control stick are removed.

Overshoot of the angle of attack beyond the permissible angle is prevented in this case by anticipatory activation of the AAL. This lead time depends on the rate of change of the angle of attack. That is, if the angle of attack increases slowly ($\dot{\alpha}$ is small), then for practical purposes the AAL is activated at α_{perm}; when the angle of attack increases sharply ($\dot{\alpha}$ is large), the AAL is activated sooner, at angles less than α_{perm} by the amount $k\dot{\alpha}$, where k is a proportionality factor. Thus the angle of attack at which the AAL is activated is determined by the expression $\alpha_a = \alpha_{perm} - k\dot{\alpha}$.

There are unique features to piloting an airplane equipped with an AAL at large angles of attack, features that must be known to insure flight safety. Let us examine some of them using recordings made by a SARPP-12G (Figure 4). The airplane

made a turn at maximum engine thrust, and then with the afterburner on (as is evident from the recordings of the on-off commands "Maximum" and "Afterburner"), losing speed and maintaining approximately constant normal acceleration n_y. As instrument velocity $V_{пр}$ decreased the pilot pulled the control stick toward himself (φ_{stab}), keeping the normal acceleration constant by increasing the angle of attack. At the moment indicated in the SARPP recording by the number 2, the angle of attack became equal to the angle of activation of the AAL, and the limiting system sharply deflected the stabilizer to a dive configuration, reducing the acceleration. The moment of activation of the AAL may be determined from the SARPP recording by the sharp deflection of the stabilizer φ_{stab} to dive configuration coupled with simultaneous recording of the on-off command "Critical Angle of Attack," which is superimposed over the altitude record. The subsequent maneuver was completed without loss of velocity and with a decrease in acceleration (angle of attack) which is why a second instance of activation of the AAL is not recorded by the SARPP.

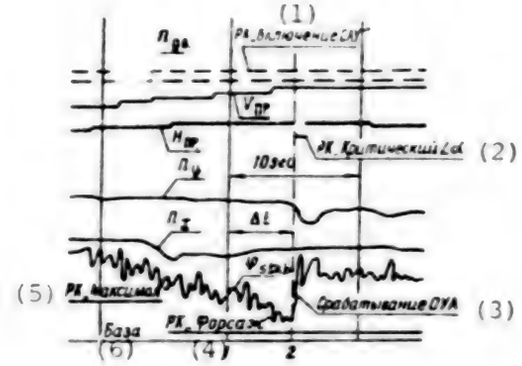

Figure 4. Recording of Flight Parameters on SARPP-12G Film During Activation of the AAL.

Key:

1. On-Off Command "Turn on Automatic Control System"
2. On-Off Command "Critical Angle of Attack"
3. Activation of AAL
4. On-Off Command "Afterburner"
5. On-Off Command "Maximum"
6. Base Line

If during performance of maneuvers the SARPP-12G system records numerous successive activations of the AAL, this means that the aircraft is being piloted near the stall limit at the real maximum angles of attack. Figure 5 shows a recording of flight parameters during the performance of a descending maneuver. Within a time of less than 10 seconds the system averted stalling of the airplane five times, as is evident from the sharp deflections of the stabilizer to the dive configuration at times t_1, t_2, t_3, t_4, t_5 and from the on-off command "Critical Angle of Attack."

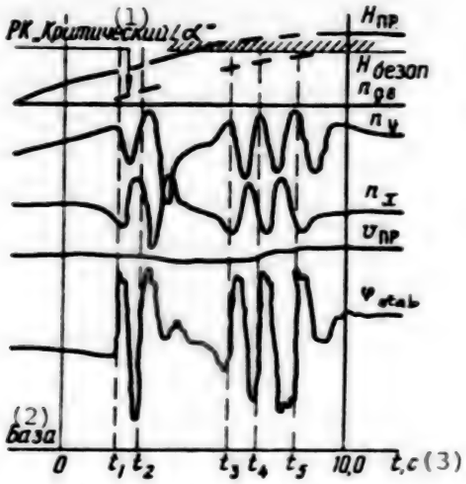

Figure 5. Recording of Flight Parameters During Performance of a Descending Maneuver at Maximum Angles of Attack

Key:

1. On-Off Command "Critical Angle of Attack"
2. Base Line
3. sec

Such energetic piloting was associated with a low altitude reserve for performance of the descending maneuver and with the pilot's desire to achieve maximum normal accelerations. Note that as a result of activation of the AAL, the mean acceleration that was actually achieved, n_y, is only insignificantly smaller than that associated with piloting at a constant angle of attack close to the maximum permissible angle. In this case flight safety was insured by an automatic angle of attack control system that prevented stalling of the airplane, as is well evident from the SARPP recording. The pilot acted correctly, and he did not hinder the work of the automatic system.

The experience of operating maneuverable airplanes outfitted with an AAL showed that a typical mistake made by pilots flying at large angles of attack is what is referred to as overpowering the AAL. This means that the pilot applies forces to the control stick following activation of the AAL which do not allow the automatic system a possibility for reducing the angle of deflection of the stabilizer to the prescribed value φ_{stab_1}. In this case after activation of the AAL, the stabilizer will remain deflected by an amount greater than φ_{stab_1} (in absolute value), and the airplane may attain angles of attack greater than permissible, and stall.

An example of overpowering the AAL is shown in Figure 6. The airplane initiated a descending maneuver at maximum angles of attack (deflection of the stabilizer for pitch in segment 0-1). The AAL was activated the first time at time t_1. But the pilot applied a force greater than $P_{bal} + \Delta P_{AAL}$ to the control stick and prevented the angle of attack limiter from reducing the angle of deflection of the stabilizer to the prescribed value φ_{stab_1} ($|\varphi_{stab_2}| > |\varphi_{stab_1}|$). Next the pilot pulled the stick toward himself, and the AAL was activated again at time t_2. But this time as well the pilot kept the stabilizer at even greater deflection angles, $|\varphi_{stab_3}| > |\varphi_{stab_2}|$, and continued to pull the stick. As a result the airplane attained angles of attack exceeding the stalling angles. Only the presence of an altitude reserve and the pilot's correct and subsequent actions made it possible for him to extricate the airplane from a dangerous situation.

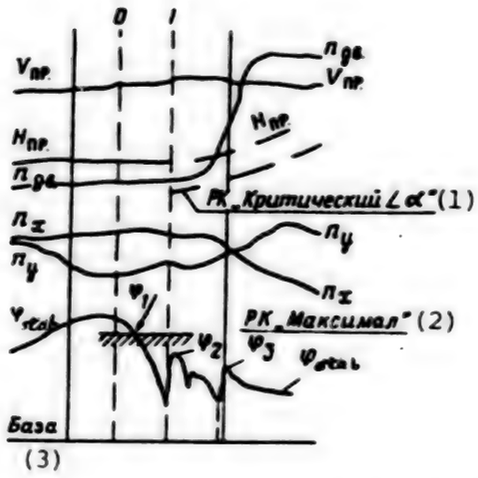

Figure 6. Recording of Flight Parameters During Overpowering of the AAL

Key:

1. On-Off Command "Critical Angle of Attack"
2. On-Off Command "Maximum"
3. Base Line

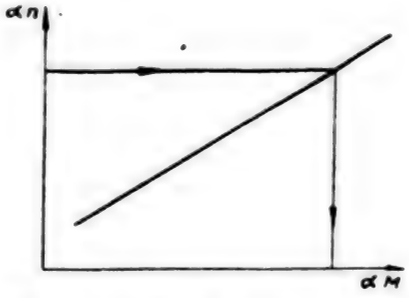

Figure 7. Nature of the Dependence $\alpha_N = \alpha_M$

The performance of the limiter was tested in a technical maintenance unit. The results showed that the angles of attack at which the AAL was activated were practically commensurate with the specifications for this airplane configuration.

Without a doubt the role played by the AAL in insuring flight safety is enormous. Therefore because there are no back-up systems and information on the AAL's technical condition is unavailable, the performance of the AAL must be tested meticulously. The correctness of its work, as determined from flight parameter recordings, must be compared with the maintenance data (specifications). For this purpose the angles of attack at which the AAL is activated, $\alpha_a \approx \alpha_{perm}$, in the presence of a very slow increase in α and deflection ϕ_{stab} of the stabilizer to dive configuration by the AAL, are excerpted from the specifications. These same characteristics are determined on the basis of SARPP-12G data in the following sequence. First we determine the true altitude and flight speed using the expression:

$$H_{ист} = H_{пр} + \delta H_{ав},$$

$$V_{ист} = \frac{V_{пр} + \delta V_{ав} + \delta V_{сж}}{\sqrt{\frac{\rho_H}{\rho_0}}},$$

where $H_{пр}$, $V_{пр}$--altitude and speed values recorded with a SARPP-12G; $\delta H_{ав}$, $\delta V_{аб}$--aerodynamic and wave correction factors for altitude and speed (determined from tables or graphs contained in the technical descriptions of the airplanes); $\delta V_{сж}$--flight speed correction factor accounting for compressibility, determined from the graph of $\delta V_{сж} = f(V_{пр}, H)$; ρ_H, ρ_0--air density at altitude H and at the ground.

Then using the results of determining $H_{ист}$ and $V_{ист}$ we calculate the form drag $q = \rho V^2/2$ and the Mach number, $M = V/a$. Change in weight of the airplane relative to its take-off weight is determined from fuel consumption as a function of engine operating conditions and time, and from data indicating presence or jettisoning of articles mounted on pylons.

Wing sweepback is determined on the basis of balanced deflection of the stabilizer (change in sweepback during sustained flight) or the gradient of the stabilizer's deflection to create a unit of acceleration (change in wing sweepback during performance of a maneuver with $n_y > 1.0$).

Given this airplane configuration and these flight conditions, we use the technical description to determine the derivative coefficient of the lifting force in relation to the angle of attack, C_y^{α}.

The angle of attack at which the AAL is activated is found from the expression:

$$\alpha_{в.п} = \frac{G/S}{C_y^{\alpha} q} n_y,$$

where G--airplane weight; S--wing area; n_y--normal acceleration at the moment of activation of the AAL, determined from the SARPP-12G recordings.

The rate of change of α prior to attainment of the angle of attack of AAL activation is determined from the expression:

$$\dot{\alpha}_в = \frac{\alpha_2 - \alpha_1}{\Delta t} = \frac{G/S}{\Delta t}\left(\frac{n_{y2}}{C_{y2}^{\alpha} q_2} - \frac{n_{y1}}{C_{y1}^{\alpha} q_1}\right),$$

where subscripts 1 and 2 indicate the values of different parameters at section lines 1 and 2 on the SARPP recording--that is, at moments of time t_1 and t_2 the angle of attack α_{perm} is determined from the expression:

$$\alpha_{perm_n} = \alpha_{a_n} + K\dot{\alpha}_n.$$

Because the angle of attack sensor measures the local angle of attack, which is influenced by significant distortions in airflow at the place where the sensor is mounted, determination of the actual α_a requires the use of the dependence $\alpha_n = (\alpha_m)$ (Figure 7). The actual value is compared with the specifications.

Next we determine the deflection angle of the stabilizer following activation of the AAL, φ_{stabl} using a calibration graph for the stabilizer channel (the calibration graph must be corrected in relation to the position of the stabilizer prior to take-off, at which time the trim effect mechanism is in neutral position, and in relation to stabilizer deflection at the moment of flow separation).

If the α_{perm} and φ_{stabl} values obtained from SARPP-12G recordings are close to the specifications, then the AAL is operating correctly. But if these values differ significantly from the specifications, the adjustment of the AAL must be checked.

Thus given correct actions by the pilot, by reducing the possibility of the airplane's attainment of stalling and spinning conditions, the angle of attack limiter significantly raises flight safety at maximum angles of attack.

11004
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INADEQUATE PSYCHOLOGICAL PREPAREDNESS CAUSES ERROR IN AIR DROP

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 80 (signed to press 1 Oct 82) pp 34-35

[Article by Col A. Yudenko, military navigator 1st class: "'Air Drop Forbidden!'"]

[Text] The crew led by military pilot 1st class, Major N. Kostyashev was flying in a combat formation of military transport aircraft during a tactical flying exercise. The airmen faced a difficult mission: After flying to maximum range, they were to drop combat equipment and airborne troops in a predesignated area. The situation was complicated by the fact that the "enemy" was using powerful jamming resources as a countermeasure. According to the intelligence he was providing strong antiaircraft cover to the drop sight of the "winged infantry" subunit.

The many hours of flying in combat formation required considerable exertion of moral and physical strengths from the crews. Nevertheless, having completed their antifighter and antimissile maneuvers, the airmen reached the required area right on time. What was most important was yet to come--sighting and the air drop of the personnel and combat equipment.

Strictly at the appointed time Major Kostyashev was able to hear the group leader report completion of the landing through the intense interference. Soon a message was transmitted from the ground with a sense of satisfaction:

"Excellent, Seven-0-One!"

The other crews following behind him completed their missions just as successfully following specific time intervals. "It's our turn," thought Kostyashev. It seemed to him that his small combat collective would not let him down. As had been prescribed by the navigation plan of the assignment, aircraft navigator Major N. Kornyev made corrections in the calculated coordinates of the airplane and the course at particular points, and at the preset locations he opened the cargo hatches and the side doors. Permission to drop the airborne party aboard was granted. Major Kostyashev and his subordinates could already see the drop sight. The terrain was dotted with multicolored parachute canopies. The airborne groups that landed first engaged the "enemy" in a battle for the airhead. Bursting charges and the trails of rockets could be clearly seen below.

Officer Korneyev, a military navigator 1st class, checked the electronic cross-hair's alignment with the correction point one last time. Everything was normal. Korneyev reported to the crew commander over the airplane intercom:

"I am making my correction."

But Major Kostyashev noticed that the "Correction" panel did not turn on. Suddenly the anxious, insistent voice of the parachute drop leader was transmitted from the landing site.

"Seven-O-Five, air drop forbidden! Seven-O-Five, air drop forbidden!"

Officer Korneyev quickly responded to the command, but a few persons had already jumped from the airplane. The prescribed landing point was still far away.

On confirming the command from the ground, Major Kostyashev anxiously asked:

"Navigator, what's the matter? It's too early, the airplane ahead of us has only just begun his drop."

Korneyev was unable to answer the commander's question at first.

Moreover there was nothing that he could answer, since the electronic light signal panel indicating the distance remaining to the drop point showed that the countdown was still on. Clearly some sort of gross error was made. As a result the paratroopers abandoned the airplane prematurely, far short of the drop point. Glancing at the panel, the navigator realized the whole problem.

"Commander, I pressed the 'Drop' button instead of the 'Correction' key. I don't know how that happened," a subdued Korneyev uttered.

And in fact, decoding and analysis of the flight recorder data confirmed that after making the corrections in the airplane's coordinates the navigator did the wrong thing. The essence of the mistake was clear. But what was its cause, why did gross failure in an important tactical flying exercise become possible?

The answer took a long time to find. Some of the officer-instructors in the unit in which majors Kostyashev and Korneyev serve emphasized in their explanation of the error that the navigator had confused the key with the button due to insufficient training. This is what caused the near-accident.

But was this really true in fact? Did the reason really lay just in insufficient training of the officer? In my opinion such a simple conclusion is both excessively categorical and incorrect: It made the analysis a little too simple. I think that the roots of the near accident must be sought in psychology. Here is why.

Major Kostyashev's crew acquired rich flying experience aboard airplanes of this type prior to the tactical flying exercise. The navigator had been through a significant number of sighted paratrooper drops in navigation situations of even greater complexity. Testing Major Korneyev's skills in piloting and combat application at the scheduled times, his chiefs evaluated his skills as excellent.

The officer had not experienced any interruptions in flying. There was another important detail: A few days before the tactical flying exercise the crew underwent a training flight in combat formation to a drop sight that had been previously simulated in application to the concrete assignment.

Does this mean that there were no grounds for the conclusion that the crew and particularly the navigator were insufficiently trained? Yes, but only in part. Deeper, more-detailed analysis made it possible to establish that during the time that preparations were being made for the tactical flying exercise (and in daily flying as well), simplification and methodological mistakes were allowed in the training and indoctrination of the airmen in the subunit in which officers Kostyashev and Korneyev served.

It would be sufficient to point out, for example, that assignments were often performed in a calm aerial situation, using highly familiar, well-established training routes, with the airplane groups kept small. During the tactical flying exercise, however, the mission had to be performed with a significantly larger number of airplanes flying in a common combat formation to the left, to the right, above and below. Naturally this created significant additional psychological loads: The flying conditions had to be monitored more strictly, and the airspace had to be watched more attentively, which significantly complicated the evolved work stereotype of Major Kostyashev's crew, including the navigator. Especially on the drop run.

During the analysis of the near-accident the tape recording of Officer Kostyashev's conversations with his subordinates along the drop run was played back. It turned out that the closer they came to the drop point, the more anxious Major Korneyev voice sounded: Its pitch changed abruptly, and his speed rate quickened. The navigator was clearly nervous.

But what about the commander? He was unable to display the required control either. Moreover Major Kostyashev frequently and anxiously asked Major Korneyev about the location of the airplane and about what he was doing, and he reported information on the situation in the air with the same tone. In other words he unwittingly increased the navigator's psychological tension, thus causing him to make mistakes in his work on the drop run.

The initial preparations for the flight were completed in full volume, but it would be useful to focus attention on some of the details. It was Major Kostyashev's responsibility to rehearse the actions of his subordinates in the most important phases of the assignment, especially on the drop run, and to encourage the entire crew to participate in the rehearsal. He should have turned on the apparatus so as to completely simulate the work of the airmen in the aerial situation associated with the particular flight. But the commander did not do any of this.

There was one other possibility for raising the psychological preparedness of the flight crew: The most typical mistakes leading to great deviations in paratrooper (cargo) drops or to failure of an assignment could be analyzed or at least recalled. Major Kostyashev did have examples of this sort to bring up. But unfortunately he did not use them.

I think that a calm, business-like exchange of opinions on issues of general interest might have helped, as would have been true for talks by airmen who had previously participated in similar tactical flying exercises.

In a word, the reserves possessed by the crew commander, the executive staff of the detachment and the squadron were sufficient. The only pity is that they were not put the use. In the end, the combat collective and mainly majors Kostyashev and Korneyev were unable to achieve that high psychological mood that makes it possible to successfully complete missions in a complex aerial situation. The near-accident was precisely the result of this seemingly insignificant omission.

The incident during the tactical flying exercise which we discussed here became an object lesson to the crew of Major N. Kostyashev, and especially to the navigator. Major N. Korneyev is now working more purposefully on improving his personal psychological preparedness, and he is advising other airmen to do the same.

11004
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AMERICAN PROPAGANDA HOSTILE TO PEACE AND COMMUNISM

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 38-39

[Article by Col I. Svetlichnyy based on foreign publications: "Dangerous Goals, Worthless Methods"]

[Text] Two opposing directions have been revealing themselves with increasing clarity in recent years in the approach taken by the Soviet Union toward the United States and its militant partners in NATO on one hand and toward solving international problems on the other.

The main foreign policy direction of the USSR and of countries of the socialist fraternity in general has been and continues to be a struggle for peace, for detente and for cessation of the arms race, mainly nuclear arms. The peace initiatives and constructive proposals suggested by the Soviet Union in the 26th CPSU Congress and in subsequent speeches by CPSU Central Committee general secretary, chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev embrace a broad complex of concrete measures of both political and military nature. They are united by one goal: to do everything possible to relieve the people of the threat of nuclear war and to preserve peace on earth. "...detente is a historic achievement of the people," Leonid Il'ich Brezhnev pointed out in his speech at a solemn meeting held in Baku on 26 September 1982. "Under no circumstances can we allow narrow-minded, egoistic politicans in the imperialist camp to tear it to pieces. It must be protected, developed and deepened. And this will be a victory of human reason over dangerous mindless aggressiveness. We have faith in such a victory, since we have faith in man's reason and, if you like, in the self-preservation instinct of the people."

The USA and its NATO partners are adhering to the opposite course. Rather than achieving agreement on the basis of equality and identical safety, they are placing priority on the aspiration for military supremacy, and rather than restraining the arms race, they are focusing on continued rearmament, on creation of new, even more destructive resources of mass annihilation. The ruling circles of the USA are doing everything they can to change the balance of forces in the world arena in their favor. What they have actually done is to assume a course toward attaining superiority over other countries and peoples, subjecting them to economic exploitation and using their territories for military strategic purposes.

Aggressive imperialist circles would not shrink from any methods to achieve their dangerous goals. To justify the course they have adopted toward insuring military supremacy over the USSR and the Warsaw Pact states, the myth of a "Soviet military threat" fabricated many years ago is now being supplemented by new "theses." Leading political and military officials of the American administration have joined the campaign to invent and spread various sorts of fabrications.

After the Reagan administration came into power, the wave of anti-Sovietism in bourgeois propaganda and the intensified unbridled slanderous campaign centered on the "Soviet military threat" climbed to proportions not yet witnessed since the times of the cold war. Essentially a new "crusade" was declared against communism, and a historically unprecedented psychological war was unleashed against the USSR and the countries of the socialist fraternity. The Washington administration is blocking the strategic arms limitation talks, and it is trying to tear up treaties already signed with the Soviet Union.

Highly placed state and military officials of the USA are frankly declaring that both global and "limited" nuclear wars can be acceptable. Large regions of the world thousands of kilometers away from the USA have been declared to be spheres of Washington's "vital interests." And this is not only lip service. The USA has located 9,000 nuclear warheads in 114 countries of the world, and a quarter of the Pentagon's personnel are serving in foreign countries, and 2,500 American military bases are located on foreign territory.

The invisible threads of control extend into the supersecret "national command military center" located in one of the underground shelters of the Pentagon. Entry into the center is strictly restricted by special color-coded passes. Representatives of all branches of the US Armed Forces serve round-the-clock duty at the "facility." They possess special direct telephone communication with the White House as well as with the American military command on the continent and across the sea. A TIME correspondent who was permitted to visit the center by Pentagon executives relates that when an operator presses a button, the combat readiness of American strategic forces is displayed on a screen. They include intercontinental ballistic missiles and missiles based on submarines aimed at objectives in the USSR and socialist countries, strategic bombers on 15-minute alert and air strike groups.

Assuming the path of increasing international tension, American imperialism significantly increased its military potential in the last few decades. This goal has been supported by a long-range program for development of American strategic nuclear forces and by plans for developing a new generation of nuclear and conventional arms and for producing nuclear, chemical and other forms of mass destruction weapons. The military budget for 1983 increased the allocations to development of strategic offensive arms by more than 40 percent, as a result of which the quantity of nuclear charges raised with a single launch (sortie) will increase by 1.5 times by the end of the 1980s. Their accuracy and power are rising simultaneously.

The USA is devoting a great deal of attention to general-purpose forces as well. The armed forces of the European NATO countries are also being modernized at a forced pace. The annual increases in military expenditures demanded by the Americans of their partners are no longer 3 percent: They are now asking for not less than 4.5 percent.

Preparing for war against the USSR and the countries of the socialist fraternity, imperialist aggressive circles are devoting serious attention to brainwashing the personnel of their armies, viewing them to be one of the most important components of combat potential. This can be explained primarily by the fact that modern imperialism is not in a position to suggest ideas which would be in keeping with the fundamental interests of the popular masses. At the same time communist ideals are capturing the consciousness of millions of people on our planet, and they are encouraging their political awakening and growth of their class self-consciousness. These ideas are also penetrating into the armed forces of the imperialist states, which is seriously troubling their political and military leaders.

The content of brainwashing occurring in the armies of imperialist states has a class nature, and it is predetermined by the interests of the monopolistic bourgeoise, by the social and state structure of these states, by the reactionary domestic and foreign policy of their governments and by the nature and purpose of the armed forces.

Anticommunism and anti-Sovietism occupy the main place in the brainwashing of military servicemen, including personnel of the air forces of the imperialist states. The emphasis of anticommunism and anti-Sovietism is placed on lies about and the slander of the socialist structure, falsification of the policy of the Communist Party of the Soviet Union and Marxist-Leninist doctrine, attempts at discrediting the state structure of the socialist countries, and attacks on the world communist and workers movement and the national liberation struggle of peoples. The anti-communist campaign is being conducted on a broad front. Certain impressions and false ideas are being drummed into the consciousness of American servicemen with the purpose of making them mechanically prepared to fulfill all orders recklessly. It is persistently suggested to them that communism is supposedly something terrible, that communists are aggressive, cruel people and that the Soviet Union is an aggressor that threatens American democracy and the independence of the United States.

Training manuals published for personnel of the US Armed Forces pose provocative questions and distort the facts in an attempt to distort certain premises of Marxist-Leninist theory and to incite a hatred of communism. Thus the training manual "The World of Communism," which incidentally contains 100 such questions, asks: "What thing are communists sure of?" The answer given is: "That murder is the principal means of attaining a goal." What is this but blasphemy against thousands upon thousands of communists who sacrificed their lives for the good of the people!

Facts show that military ideologists have recently been expanding the scale of anti-Soviet propaganda, especially in connection with preparations for celebration fo the 60th anniversary of the USSR. For example the air force staff in Washington has created a new center of anti-Sovietism where military Sovietologists fabricate films about the Soviet Army. The center writes anti-Soviet articles for journals and newspapers, and it conducts special seminars devoted to research on the Soviet Armed Forces. It also trains propagandists who then go to different garrisons and air force bases to conduct lessons with slanderous and anti-Soviet aims. Special instructors train "aggressor" squadrons that participate in tactical flying exercises as the "Soviet side."

The aviation journal AIRMAN once published a series of articles about our army and its soldiers prepared by the air force center of Sovietologists. They are all slanderous in nature, and they are intended to frighten the uninformed reader. Recently propaganda of fascism and militarism and of the fighting power of military-political aggressive blocs, especially NATO, has recently enjoyed extensive application. Its purpose is to prove to the personnel the military superiority of the Western world over the "communist bloc" and to persuade them that because of their superiority and military unity, nuclear war would not cause them large losses. An attempt is made to raise the morale of the servicemen and to overcome their fear of the possibility of a destructive, devastating nuclear missile war.

In addition much is said for propaganda purposes about the friendship and unity supposedly existing among the servicemen in the military blocs of the imperialist states. The necessity of such propaganda is elicited by the growing displeasure of the peoples of countries dependent upon the USA with presence of American troops on their territories, by the unruly behavior of American servicemen in relation to the peaceful population, and most importantly by the deep political and economic contradictions existing between the countries in these blocs. To smooth out these contradictions it is suggested to Bundeswehr soldiers for example that without NATO, and especially without assistance from the USA, the FRG would be unable to insure its own security against a "threat" from the East, and therefore service in the troops of this alliance would supposedly be a contribution to "the cause of preserving peace."

The ruling circles and military machine of imperialist states are using an entire system of propaganda and other measures to make the armed forces personnel the obedient subjects of the will of monopolistic bourgeoise and to compel them to fight for alien interests. Creative literature occupies a prominent place in the brainwashing of American servicemen: books describing the "acts of heroism " of gangsters, spies and detectives; cheap novels offering a spicy concoction of pornography, violence and depravity. The libraries contain no works by modern progressive American writers or the classicists of world literature; instead there are many third-rate novels and stories, militaristic and racist works and comics. Much room is devoted in the literature to publicizing the bloody experience of pilots who had participated in the USA's aggressive war in Vietnam and in military adventures in the Near East and in other regions of the globe.

Motion pictures, radio and television are extensively employed in the brainwashing of American air force personnel. A radio and television service managed by the State Department's Information and Education Administration provides overall direction to radio broadcasts for servicemen. This service prepares programs, tapes them and sends the tapes to the troops. It stocks so-called music libaries. Each day the radio and television broadcasting centers of the armed forces transmit various programs with basically an anti-Soviet content to the troops for several hours in a row.

The Pentagon buys a large quantity of propaganda films each year, to be shown to the personnel. Many films with an anticommunist and anti-Soviet flavor are shown with the purpose nurturing a hatred for the USSR and its armed forces.

Religious propaganda, upon which the ruling circles of the USA spend enormous assets, is extremely reactionary in content and sophisticated in form and methods. Capitalizing on political backwardness, ignorance, the superstition and religious prejudices, armed forces chaplains try to place all airmen under their spiritual influence and control. The old and new testaments are laid at the basis of religious propaganda. Chaplains organize various holidays, imparting an anticommunist nature to them.

Thus brainwashing of personnel in the air force and in all of the armed forces of the USA as well as other capitalist countries is conducted with the purpose of keeping servicemen under the control of the command, so as to isolate them from the people, distract them from social problems, protect them from the influence of progressive ideas and philosophies and make them an obedient tool in the achievement of the class goals of imperialism.

11004
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ECONOMICAL USE OF INTERCEPT TRAINING TIME URGED

Moscow AVIATSIYA I KOSMONAVTIKA in Russian No 11, Nov 82 (signed to press 1 Oct 82) pp 42-43

[Article by Lt Col A. Guk: "The Practice Range and Flight Zones Were Idle"]

[Text] The supersonic fighter taxied to the place reserved for it. The pilot, Lieutenant S. Korobochka, climbed out of the cockpit. There was a happy smile on his face. There was good reason for that: His flight schedule was intensive, and every sortie was another step on the hard road to the summit of proficiency.

The lieutenant reported the necessary information on the work of the equipment to the aviation specialists, he entered the appropriate notes in the documents, and he was just about to walk toward the tower when he stopped in his tracks. The pilot's gaze locked onto a landing fighter. A friend of his, Lieutenant V. Poroshenko, was in the cockpit of that airplane. The young officers were competing for first place in training. Communist Korobochka could not wait to find out how well his rival did on his mission.

This time Lieutenant Poroshenko was dissatisfied with his flight. The way in which he intercepted his airborne target in the stratosphere was far from correct. He took longer than necessary to make his climb, and he made other mistakes as well. And when he turned on the afterburner for interception, lamps indicating minimum fuel remaining began to blink.

Poroshenko had to interrupt his attack and return to the airfield. Analyzing his actions, the lieutenant realized that he himself was to blame for what happened: He had prepared for the flight poorly, and he did not work efficiently enough in the air. He would have to do that assignment over.

Two pilots had been in the sky. Both had clocked about the same flying hours. But one made a step forward, and the other wasted aircraft and engine life and fuel without purpose. The hard work of all who had supported the flight turned out to be useless because of him. Nor should we forget that every minute of flying has a concrete numerical expression from the point of view of economics. If a pilot is successful, then the outlays are justified. And when he allows himself to be careless and imprecise, the unproductive and unjustified losses of state resources grow.

Our country gives our airmen everything they need to improve their combat skills. They have high-power airplanes and helicopters, the latest radar stations and accurate instruments at their disposal. Pilots clock tens and hundreds of hours in the air in the most diverse weather conditions--something they must do if they are to improve their proficiency as patrolmen of the skies and raise their combat readiness. But this does not at all mean that they should not think about making sensible use of all these resources.

In most air subunits, of course, every state kopeck is spent sensibly and material valuables are stored carefully, in the way that decisions of the 26th CPSU Congress encourage all Soviet people. Thus the squadron commanded by Major A. Uryvayev has initiated a major campaign to get maximum effectiveness out of every flying hour. The pilots, technicians and mechanics contribute all of their efforts to excluding unjustified repeat take-offs and excessive flying time, and they fight for a strict sequence in the performance of programmed exercises, and for high efficiency in the use of every minute of preparation time.

But there are certain air commanders who do not think about what a minute of flying costs and forget the need for economization in their effort to fulfill the plan. To justify themselves they suggest the substantial argument that every minute in the air is supposedly precious to the pilot and that all flying time is useful. This is not an area in which to be miserly, they say.

But is this really so? Every flight is in fact precious to the military pilot. And the more he flies, the faster he improves his proficiency. Long interruptions in combat flying are not only harmful but also impermissible. Nevertheless we cannot forget that the nature of time spent in the air can vary, and that the benefit from flying is not always the same. It is upon this that the economics of flight shifts depends, causing the cost of an hour of flying to increase or decrease.

I acquainted myself with Senior Lieutenant K. Petrachenko's flight log. By this time he had doubled the flying time plan, and the figures describing his time in the air were significant. This might appear to be a positive thing that should make one happy. But in reality the senior lieutenant had nothing to be proud about: Petrachenko had flown the same exercises several times. And in the final analysis the pilot actually did not complete all of his planned assignments, including his combat application exercises.

Some other pilots in his regiment were in the same situation. No matter what you say, the conclusion begs itself: The squadron in which Petrachenko serves has made flying time an end in itself. But flying time is not what determines the proficiency of the personnel.

"Were we to evaluate flying on the basis of this criterion, how could we possibly suggest that we are combat ready? " I recall one of the flight commanders saying when the discussion turned to this subject.

His opinion was shared by many flight leaders. To other commanders, flying time is an indicator unto itself. The personnel of such units and subunits spend day and night at the airfield, the support resources remain without preventive maintenance and adjustment for long periods of time, and progress is extremely slow. Then toward the end of the training period or the year it is discovered that the flight training plan is far from complete in relation to specific tasks.

Why does this happen? To answer this question we need to analyze at least one flying day at the squadron in which Senior Lieutenant V. Bogoslov serves.

Things seemed to come together rather well right from the morning. The weather was fabulous. The pilots could barely wait to get into the air. The technicians, mechanics and the drivers of special motor transportation worked up a sweat. But then a "bottleneck" formed in the exercise area. Rather than being in the sky, some of the airplanes remained on the ground. The flight zones and practice range sat idle. The deputy commander for the air engineer service paced nervously, and the flight leader bit his nails. Meanwhile time marched on.

What were the reasons for the foul-up? The planning table had not been drawn up accurately. The trouble began when faulty resources were brought in to support the flying shift. The air specialists had to check out the airplanes, but the air-field starting units sat still: They were finally repaired during the flying itself.

These are not sporadic cases at this airfield. The pages of the flight leader's log bear numerous notes indicating that faulty support resources are regularly provided on flying days. Frequently not only the equipment but also the landing strip, the taxi-ways and the airplane parking pads are not ready for flying.

"But what can we do?" battalion deputy commander Major L. Berezin attempted to justify the situation. "We do not have any possibilities for taking equipment out for preventive maintenance: It is working from dawn to dusk. Sometimes our drivers never leave their cabs for two whole shifts."

And in fact, the battalion is on occasion asked to provide clearly more equipment that necessary, and the demands are simply impossible to satisfy. As a result all of the support resources are sometimes driven out to the airfield to support the flying of just one or two airplanes. At the same time there have been cases in which just a single airfield starting unit had to support the regiment's airplanes.

Certain individuals requisition special motor transportation, while others "correct" the orders on their own discretion. And for some reason no one has been able to come up with the idea of uniting the efforts of those who organize and support the flying, to calculate with paper and pencil how many of what kind of vehicles are needed for flight support, on the basis of the real requirements, and which vehicles should be left behind for preventive and current maintenance. As a result everyone loses.

Consequently the true way to achieve economy and thrift is to fight for efficient organization of flying. Forgetting this means forgetting state interests. This, I think, is the only way this issue can be interpreted.

But this is not the sole reason preventing thrifty, careful expenditure of materiel. Consider the following situation. The airplane is well prepared and armed. The pilot takes off on his assignment, but during his first approach of the ground target at the practice range he dives too low. The flight leader prohibits the pilot from continuing his exercise because of his gross violation of the safety rules. Thus the pilot is forced to return to the airfield. He has clocked his flying time, but the anticipated end result is not to be, and all is wasted. The exercise must be performed once again.

Someone might argue that this example is an exception. But can we really say that such cases occur seldom in practice? A pilot may forget which tumbler switches need to be turned on, and so is unable to drop his bombs on the first run; an aviation armament specialist may load the film askew causing abortion of the tactical firing exercise; a combat control officer may transmit the wrong command, causing interception to fail.

Thus the concern for economy is not just the commander's concern. It is the intimate business of every military airman, no matter his post and no matter his mission. A good example in this regard is shown by the subordinates of Major A. Uryvayev. They direct their efforts both at reducing expenditure of resources necessary for a given operation and at systematically improving job quality and reducing the time to prepare equipment for flying. Their creative enquiry is an example of how concern for economy can be combined with growth of combat readiness.

Of course, in our fight for economy we must consider various objective circumstances. Assume that the flight personnel have not flown for a long period of time in adverse weather under minimum conditions, and the commander decides to take a chance on the weather. He summons all the supporting resources to the airfield even though the hope that flying would occur is rather slim. In this case even if the flying time turns out to be low and the cost of each flight is somewhat higher, the risk is justified.

But unfortunately sometimes things happen differently. The pilots have clocked a great deal of flying time, they have not had any breaks, and the weathermen confidently say that no weather is expected, but the airplanes are towed out to the start point anyway. The necessary equipment is brought out as well. What explanation could there be for such a case, other than disregard of economy?

I have discussed situations that occurred at different times in different subunits. Unfortunately such negative phenomena are still encountered today. I would like to remind those who are to blame for this that the fight for economy and thrift is a matter of state importance. We cannot forgive this.

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